



SEQUENCE LISTING

<110> Stahl, Andreas
Hirsch, David J.
Lodish, Harvey F.
Gimeno, Ruth E.
Tartaglia, Louis A.

<120> FATTY ACID TRANSPORT PROTEINS

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<140> 09/405,504

<141> 1999-09-23

<150> 09/232,201

<151> 1999-01-14

<150> 60/071,374

<151> 1998-01-15

<150> 60/093,491

<151> 1998-07-20

<150> 60/110,941

<151> 1998-12-04

<160> 105

<170> FastSEQ for Windows Version 3.0

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<212> PRT

<213> Mus musculus

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Cys	Arg	Ala	Asp	Asp	Val	Val	Tyr	Asp	Val	Leu	Pro	Leu	Tyr	His	Thr
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Ile	Gly	Leu	Val	Leu	Gly	Phe	Leu	Gly	Cys	Leu	Gln	Val	Gly	Ala	Thr
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Cys	Val	Leu	Ala	Pro	Lys	Phe	Ser	Ala	Ser	Arg	Phe	Trp	Ala	Glu	Cys
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Arg	Gln	His	Gly	Val	Thr	Val	Ile	Gln	Tyr	Ile	Gly	Glu	Ile	Cys	Arg
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Tyr	Leu	Leu	Arg	Gln	Pro	Val	Arg	Asp	Val	Glu	Gln	Arg	His	Arg	Val
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Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro	Ala	Ile	Trp	Glu	Glu	Phe
		115					120					125			
Thr	Gln	Arg	Phe	Gly	Val	Pro	Gln	Ile	Gly	Glu	Phe	Tyr	Gly	Ala	Thr
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Glu Cys Asn Cys Ser Ile Ala Asn Met Asp Gly Lys Val Gly Ser Cys
 145 150 155 160
 Gly Phe Asn Ser Arg Ile Leu Thr His Val Tyr Pro Ile Arg Leu Val
 165 170 175
 Lys Val Asn Glu Asp Thr Met Glu Pro Leu Arg Asp Ser Glu Gly Leu
 180 185 190
 Cys Ile Pro Cys Gln Pro Gly Glu Pro Gly Leu Leu Val Gly Gln Ile
 195 200 205
 Asn Gln Asp Pro Leu Arg Arg Phe Asp Gly Tyr Val Ser Asp Ser
 210 215 220
 Ala Thr Asn Lys Lys Ile Ala His Ser Val Phe Arg Lys Gly Asp Ser
 225 230 235 240
 Ala Tyr Leu Ser Gly Asp Val Leu Val Met Asp Glu Leu Gly Tyr Met
 245 250 255
 Tyr Phe Arg Asp Arg Ser Gly Asp Thr Phe Arg Trp Arg Gly Glu Asn
 260 265 270
 Val Ser Thr Thr Glu Val Glu Ala Val Leu Ser Arg Leu Leu Gly Gln
 275 280 285
 Thr Asp Val Ala Val Tyr Gly Val Ala Val Pro Gly Val Glu Gly Lys
 290 295 300
 Ala Gly Met Ala Ala Ile Ala Asp Pro His Ser Gln Leu Asp Pro Asn
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 Ser Met Tyr Gln Glu Leu Gln Lys Val Leu Ala Ser Tyr Ala Arg Pro
 325 330 335
 Ile Phe Leu Arg
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<210> 2
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 <212> PRT
 <213> Mus musculus

<400> 2
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 Lys His Phe Arg Tyr Phe Trp Ile Ala Met Gly Ala Gly Lys Ala Phe
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 Gly Ile Asn Lys Ser Asp Val Val Tyr Ile Thr Met Pro Met Tyr His
 35 40 45
 Ser Ala Ala Gly Ile Met Gly Ile Gly Ser Leu Ile Ala Phe Gly Ser
 50 55 60
 Thr Ala Val Ile Arg Lys Lys Phe Ser Ala Ser Asn Phe Trp Lys Asp
 65 70 75 80
 Cys Val Lys Tyr Asn Val Thr Ala Thr Leu Tyr Val Gly Glu Ile Leu
 85 90 95
 Arg Tyr Leu Cys Asn Val Pro Glu Gln Pro Glu Asp Lys Ile His Thr
 100 105 110
 Val Arg Leu Ala Met Gly Thr Gly Leu Arg Ala Asn Val Trp Lys Asn
 115 120 125
 Phe Gln Gln Arg Phe Gly Pro Ile Arg Ile Trp Glu Phe Tyr Gly Ser
 130 135 140
 Thr Glu Gly Asn Val Gly Leu Met Asn Tyr Val Gly His Cys Gly Ala
 145 150 155 160
 Val Gly Arg Thr Ser Cys Ile Leu Arg Met Leu Thr Pro Phe Glu Leu
 165 170 175
 Val Gln Phe Asp Ile Glu Thr Ala Glu Pro Leu Arg Asp Lys Gln Gly
 180 185 190
 Phe Cys Ile Pro Val Glu Pro Gly Lys Pro Gly Leu Leu Thr Lys
 195 200 205

Val Arg Lys Asn Gln Pro Phe Leu Gly Tyr Arg Gly Ser Gln Ala Glu
 210 215 220
 Ser Asn Arg Lys Leu Val Ala Asn Val Arg Arg Val Gly Asp Leu Tyr
 225 230 235 240
 Phe Asn Thr Gly Asp Val Leu Thr Leu Asp Gln Glu Gly Phe Phe Tyr
 245 250 255
 Phe Gln Asp Arg Leu Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val
 260 265 270
 Ser Thr Gly Glu Val Glu Cys Val Leu Ser Ser Leu Asp Phe Leu Glu
 275 280 285
 Glu Val Asn Val Tyr Gly Val Pro Val Pro Gly Cys Glu Gly Lys Val
 290 295 300
 Gly Met Ala Ala Val Lys Leu Ala Pro Gly Lys Thr Phe Asp Gly Lys
 305 310 315 320
 Lys Tyr Gln His Val Arg Ser Trp Leu Pro Ala Tyr Ala Thr Pro His
 325 330 335
 Phe Ile Arg

<210> 3
 <211> 345
 <212> PRT
 <213> Caenorhabditis elegans

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 35 40 45
 Thr Ala Ala Leu Leu Gly Ala Cys Ala Ile Leu Ser His Gly Gly Cys
 50 55 60
 Leu Ala Leu Ser His Lys Phe Ser Ala Ser Thr Phe Trp Lys Gln Val
 65 70 75 80
 Tyr Leu Thr Gly Ala Thr His Ile Gln Tyr Ile Gly Glu Ile Cys Arg
 85 90 95
 Tyr Leu Leu Ala Ala Asn Pro Cys Pro Glu Glu Lys Gln His Asn Val
 100 105 110
 Arg Leu Met Trp Gly Asn Gly Leu Arg Gly Gln Ile Trp Lys Glu Phe
 115 120 125
 Val Gly Arg Phe Gly Ile Lys Lys Ile Gly Glu Leu Tyr Gly Ser Thr
 130 135 140
 Glu Gly Asn Ser Asn Ile Val Asn Val Asp Asn His Val Gly Ala Cys
 145 150 155 160
 Gly Phe Met Pro Ile Tyr Pro His Ile Gly Ser Leu Tyr Pro Val Arg
 165 170 175
 Leu Ile Lys Val Asp Arg Ala Thr Gly Glu Leu Glu Arg Asp Lys Asn
 180 185 190
 Gly Leu Cys Val Pro Cys Val Pro Gly Glu Thr Gly Glu Met Val Gly
 195 200 205
 Val Ile Lys Glu Lys Asp Ile Leu Leu Lys Phe Glu Gly Tyr Val Ser
 210 215 220
 Glu Gly Asp Thr Ala Lys Lys Ile Tyr Arg Asp Val Phe Lys His Gly
 225 230 235 240
 Asp Lys Val Phe Ala Ser Gly Asp Ile Leu His Trp Asp Asp Leu Gly
 245 250 255
 Tyr Leu Tyr Phe Val Asp Arg Cys Gly Asp Thr Phe Arg Trp Lys Gly
 260 265 270

Glu Asn Val Ser Thr Thr Glu Val Glu Gly Ile Leu Gln Pro Val Met
 275 280 285
 Asp Val Glu Asp Ala Thr Val Tyr Gly Val Thr Val Gly Lys Met Glu
 290 295 300
 Gly Arg Ala Gly Met Ala Gly Ile Val Val Lys Asp Gly Thr Asp Val
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 Glu Lys Phe Ile Ala Asp Ile Thr Ser Arg Leu Thr Glu Asn Leu Ala
 325 330 335
 Ser Tyr Ala Ile Pro Val Phe Ile Arg
 340 345

<210> 4

<211> 356

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 4

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 Ser Met Arg Ala Ala Asp Val Leu Tyr Asp Cys Leu Pro Leu Tyr His
 35 40 45
 Ser Ala Gly Asn Ile Met Gly Val Gly Gln Cys Val Ile Tyr Gly Leu
 50 55 60
 Thr Val Val Leu Arg Lys Lys Phe Ser Ala Ser Arg Phe Trp Asp Asp
 65 70 75 80
 Cys Val Lys Tyr Asn Cys Thr Val Val Gln Tyr Val Gly Glu Val Cys
 85 90 95
 Arg Tyr Leu Leu His Thr Pro Ile Ser Lys Tyr Glu Lys Met His Lys
 100 105 110
 Val Lys Val Ala Tyr Gly Asn Gly Leu Arg Pro Asp Ile Trp Gln Asp
 115 120 125
 Phe Arg Lys Arg Phe Asn Ile Glu Val Ile Gly Glu Phe Tyr Ala Ala
 130 135 140
 Thr Glu Ala Pro Phe Ala Thr Thr Thr Phe Gln Lys Gly Asp Phe Gly
 145 150 155 160
 Ile Gly Ala Cys Arg Asn Tyr Gly Thr Ile Ile Gln Trp Phe Leu Ser
 165 170 175
 Phe Gln Gln Thr Leu Val Arg Met Asp Pro Asn Asp Asp Ser Val Ile
 180 185 190
 Tyr Arg Asn Ser Lys Gly Phe Cys Glu Val Ala Pro Val Gly Glu Pro
 195 200 205
 Gly Glu Met Leu Met Arg Ile Phe Phe Pro Lys Lys Pro Glu Thr Ser
 210 215 220
 Phe Gln Gly Tyr Leu Gly Asn Ala Lys Glu Thr Lys Ser Lys Val Val
 225 230 235 240
 Arg Asp Val Phe Arg Arg Gly Asp Ala Trp Tyr Arg Cys Gly Asp Leu
 245 250 255
 Leu Lys Ala Asp Glu Tyr Gly Leu Trp Tyr Phe Leu Asp Arg Met Gly
 260 265 270
 Asp Thr Phe Arg Trp Lys Ser Glu Asn Val Ser Thr Thr Glu Val Glu
 275 280 285
 Asp Gln Leu Thr Ala Ser Asn Lys Glu Gln Tyr Ala Gln Val Leu Val
 290 295 300
 Val Gly Ile Lys Val Pro Lys Tyr Glu Gly Arg Ala Gly Phe Ala Val
 305 310 315 320
 Ile Lys Leu Thr Asp Asn Ser Leu Asp Ile Thr Ala Lys Thr Lys Leu
 325 330 335

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 Leu Phe Val Lys
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 <212> PRT
 <213> Mycobacterium tuberculosis

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 35 40 45
 His Asn Asn Ala Leu Thr Val Ala Val Ser Ser Val Ile Asn Ser Gly
 50 55 60
 Ala Thr Leu Ala Leu Gly Lys Ser Phe Ser Ala Ser Arg Phe Trp Asp
 65 70 75 80
 Glu Val Ile Ala Asn Arg Ala Thr Ala Phe Val Tyr Ile Gly Glu Ile
 85 90 95
 Cys Arg Tyr Leu Leu Asn Gln Pro Ala Lys Pro Thr Asp Arg Ala His
 100 105 110
 Gln Val Arg Val Ile Cys Gly Asn Gly Leu Arg Pro Glu Ile Trp Asp
 115 120 125
 Glu Phe Thr Thr Arg Phe Gly Val Ala Arg Val Cys Glu Phe Tyr Ala
 130 135 140
 Ala Ser Glu Gly Asn Ser Ala Phe Ile Asn Ile Phe Asn Val Pro Arg
 145 150 155 160
 Thr Ala Gly Val Ser Pro Met Pro Leu Ala Phe Val Glu Tyr Asp Leu
 165 170 175
 Asp Thr Gly Asp Pro Leu Arg Asp Ala Ser Gly Arg Val Arg Arg Val
 180 185 190
 Pro Asp Gly Glu Pro Gly Leu Leu Ser Arg Val Asn Arg Leu Gln
 195 200 205
 Pro Phe Asp Gly Tyr Thr Asp Pro Val Ala Ser Glu Lys Lys Leu Val
 210 215 220
 Arg Asn Ala Phe Arg Asp Gly Asp Cys Trp Phe Asn Thr Gly Asp Val
 225 230 235 240
 Met Ser Pro Gln Gly Met Gly His Ala Ala Phe Val Asp Arg Leu Gly
 245 250 255
 Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala Thr Thr Gln Val Glu
 260 265 270
 Ala Ala Leu Ala Ser Asp Gln Thr Val Glu Glu Cys Thr Val Tyr Gly
 275 280 285
 Val Gln Ile Pro Arg Thr Gly Gly Arg Ala Gly Met Ala Ala Ile Thr
 290 295 300
 Leu Arg Ala Gly Ala Glu Phe Asp Gly Gln Ala Leu Ala Arg Thr Val
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 Tyr Gly His Leu Pro Gly Tyr Ala Leu Pro Leu Phe Val Arg
 325 330

<210> 6
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 <212> DNA
 <213> Mus musculus

<400> 6

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cacgcgtggc	gcctccggct	ggagatgcgg	ctgctagagg	gacgaccg	ccccctctgg	360
caccgggggc	gaccgtggcg	ctgctcctcc	cagcggggccc	ggatttcctt	tggatttgg	420
tcggactggc	caaagctggc	ctgcgcacgg	cctttgtgcc	caccgcttta	cgccgaggac	480
ccctgctgca	ctgcctccgc	agctgcgggtg	cgagtgcgct	cgtgctggcc	acagagttcc	540
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ggcgagcttc	ctggcctttac	aagcacatct	tccccctctc	cttgattcga	tacgatgtca	1260
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gcagggcagg	catggcggcc	ttggctctgc	ggcccccgca	ggctctgaac	ctggtgcagc	1680
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gctttgaccc	cagtgtactg	tctgaccac	tctatgttct	ggaccaagat	ataggggctt	1860
acctgcccc	cacacctgcc	cggtacagt	ccctcctgtc	tggagacctt	cgaatctgaa	1920
accttccact	tgagggagg	gctcggagg	tacaggccac	catggctgca	ccagggagg	1980
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<210> 7

<211> 613

<212> PRT

<213> Mus musculus

<400> 7

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			20					25					30		
Gly	Ala	Gln	Arg	Phe	Ser	Tyr	Ala	Glu	Ala	Glu	Arg	Glu	Ser	Asn	Arg
		35					40					45			
Ile	Ala	Arg	Ala	Phe	Leu	Arg	Ala	Arg	Gly	Trp	Thr	Gly	Gly	Arg	Arg
	50					55					60				
Gly	Ser	Gly	Arg	Gly	Ser	Thr	Glu	Glu	Gly	Ala	Arg	Val	Ala	Pro	Pro
65					70					75				80	
Ala	Gly	Asp	Ala	Ala	Ala	Arg	Gly	Thr	Thr	Ala	Pro	Pro	Leu	Ala	Pro
			85						90					95	
Gly	Ala	Thr	Val	Ala	Leu	Leu	Leu	Pro	Ala	Gly	Pro	Asp	Phe	Leu	Trp
			100					105					110		
Ile	Trp	Phe	Gly	Leu	Ala	Lys	Ala	Gly	Leu	Arg	Thr	Ala	Phe	Val	Pro
		115					120					125			

Thr Ala Leu Arg Arg Gly Pro Leu Leu His Cys Leu Arg Ser Cys Gly
 130 135 140
 Ala Ser Ala Leu Val Leu Ala Thr Glu Phe Leu Glu Ser Leu Glu Pro
 145 150 155 160
 Asp Leu Pro Ala Leu Arg Ala Met Gly Leu His Leu Trp Ala Thr Gly
 165 170 175
 Pro Glu Thr Asn Val Ala Gly Ile Ser Asn Leu Leu Ser Glu Ala Ala
 180 185 190
 Asp Gln Val Asp Glu Pro Val Pro Gly Tyr Leu Ser Ala Pro Gln Asn
 195 200 205
 Ile Met Asp Thr Cys Leu Tyr Ile Phe Thr Ser Gly Thr Thr Gly Leu
 210 215 220
 Pro Lys Ala Ala Arg Ile Ser His Leu Lys Val Leu Gln Cys Gln Gly
 225 230 235 240
 Phe Tyr His Leu Cys Gly Val His Gln Glu Asp Val Ile Tyr Leu Ala
 245 250 255
 Leu Pro Leu Tyr His Met Ser Gly Ser Leu Leu Gly Ile Val Gly Cys
 260 265 270
 Leu Gly Ile Gly Ala Thr Val Val Lys Pro Lys Phe Ser Ala Ser
 275 280 285
 Gln Phe Trp Asp Asp Cys Gln Lys His Arg Val Thr Val Phe Gln Tyr
 290 295 300
 Ile Gly Glu Leu Cys Arg Tyr Leu Val Asn Gln Pro Pro Ser Lys Ala
 305 310 315 320
 Glu Phe Asp His Lys Val Arg Leu Ala Val Gly Ser Gly Leu Arg Pro
 325 330 335
 Asp Thr Trp Glu Arg Phe Leu Arg Arg Phe Gly Pro Leu Gln Ile Leu
 340 345 350
 Glu Thr Tyr Gly Met Thr Glu Gly Asn Val Ala Thr Phe Asn Tyr Thr
 355 360 365
 Gly Arg Gln Gly Ala Val Gly Arg Ala Ser Trp Leu Tyr Lys His Ile
 370 375 380
 Phe Pro Phe Ser Leu Ile Arg Tyr Asp Val Met Thr Gly Glu Pro Ile
 385 390 395 400
 Arg Asn Ala Gln Gly His Cys Met Thr Thr Ser Pro Gly Glu Pro Gly
 405 410 415
 Leu Leu Val Ala Pro Val Ser Gln Gln Ser Pro Phe Leu Gly Tyr Ala
 420 425 430
 Gly Ala Pro Glu Leu Ala Lys Asp Lys Leu Leu Lys Asp Val Phe Trp
 435 440 445
 Ser Gly Asp Val Phe Phe Asn Thr Gly Asp Leu Leu Val Cys Asp Glu
 450 455 460
 Gln Gly Phe Leu His Phe His Asp Arg Thr Gly Asp Thr Ile Arg Trp
 465 470 475 480
 Lys Gly Glu Asn Val Ala Thr Thr Glu Val Ala Glu Val Leu Glu Thr
 485 490 495
 Leu Asp Phe Leu Gln Glu Val Asn Ile Tyr Gly Val Thr Val Pro Gly
 500 505 510
 His Glu Gly Arg Ala Gly Met Ala Ala Leu Ala Leu Arg Pro Pro Gln
 515 520 525
 Ala Leu Asn Leu Val Gln Leu Tyr Ser His Val Ser Glu Asn Leu Pro
 530 535 540
 Pro Tyr Ala Arg Pro Arg Phe Leu Arg Leu Gln Glu Ser Leu Ala Thr
 545 550 555 560
 Thr Glu Thr Phe Lys Gln Gln Lys Val Arg Met Ala Asn Glu Gly Phe
 565 570 575
 Asp Pro Ser Val Leu Ser Asp Pro Leu Tyr Val Leu Asp Gln Asp Ile
 580 585 590

Gly Ala Tyr Leu Pro Leu Thr Pro Ala Arg Tyr Ser Ala Leu Leu Ser
 595 600 605
 Gly Asp Leu Arg Ile
 610

<210> 8
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 <212> DNA
 <213> Mus musculus

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<210> 9
 <211> 506
 <212> PRT
 <213> Mus musculus

<400> 9
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Asp	Thr	Ser	Lys	Ala	Arg	Ala	Leu	Ile	Phe	Gly	Ser	Glu	Met	Ala	Ser
		35					40					45			
Ala	Ile	Cys	Glu	Ile	His	Ala	Ser	Leu	Glu	Pro	Thr	Leu	Ser	Leu	Phe
		50				55					60				
Cys	Ser	Gly	Ser	Trp	Glu	Pro	Ser	Thr	Val	Pro	Val	Ser	Thr	Glu	His
65					70					75				80	
Leu	Asp	Pro	Leu	Leu	Glu	Asp	Ala	Pro	Lys	His	Leu	Pro	Ser	His	Pro
			85					90					95		
Asp	Lys	Gly	Phe	Thr	Asp	Lys	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr
			100					105					110		
Thr	Gly	Leu	Pro	Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg
		115					120					125			
Met	Ala	Ser	Leu	Val	Tyr	Tyr	Gly	Phe	Arg	Met	Arg	Pro	Asp	Asp	Ile
130						135					140				
Val	Tyr	Asp	Cys	Leu	Pro	Leu	Tyr	His	Ser	Ser	Arg	Lys	His	Arg	Gly
145					150					155				160	
Asp	Trp	Gln	Cys	Leu	Leu	His	Gly	Met	Thr	Val	Val	Ile	Arg	Lys	Lys
			165					170						175	
Phe	Ser	Ala	Ser	Arg	Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr
			180					185					190		
Val	Val	Gln	Tyr	Ile	Gly	Glu	Leu	Cys	Arg	Tyr	Leu	Leu	Asn	Gln	Pro
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Pro	Arg	Glu	Ala	Glu	Ser	Arg	His	Lys	Val	Arg	Met	Ala	Leu	Gly	Asn
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225					230					235				240	
Pro	Gln	Val	Ala	Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu
			245					250					255		
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		260					265						270		
Leu	Ser	Phe	Val	Tyr	Pro	Ile	Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr
		275					280					285			
Met	Glu	Leu	Ile	Arg	Gly	Pro	Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro
		290				295					300				
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Arg	Arg	Phe	Asp	Gly	Tyr	Leu	Asn	Gln	Gly	Ala	Asn	Asn	Lys	Lys	Ile
			325						330					335	
Ala	Asn	Asp	Val	Phe	Lys	Lys	Gly	Asp	Gln	Ala	Tyr	Leu	Thr	Gly	Asp
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Gly	Asp	Thr	Phe	Arg	Trp	Lys	Gly	Glu	Asn	Val	Ser	Thr	Thr	Glu	Val
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Glu	Gly	Thr	Leu	Ser	Arg	Leu	Leu	His	Met	Ala	Asp	Val	Ala	Val	Tyr
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Gly	Val	Glu	Val	Pro	Gly	Thr	Glu	Gly	Arg	Ala	Gly	Met	Ala	Ala	Val
			405					410					415		
Ala	Ser	Pro	Ile	Ser	Asn	Cys	Asp	Leu	Glu	Ser	Phe	Ala	Gln	Thr	Leu
			420					425					430		
Lys	Lys	Glu	Leu	Pro	Leu	Tyr	Ala	Arg	Pro	Ile	Phe	Leu	Arg	Phe	Leu
		435					440					445			
Pro	Glu	Leu	His	Lys	Thr	Gly	Thr	Phe	Lys	Phe	Gln	Lys	Thr	Glu	Leu
		450				455					460				
Arg	Lys	Glu	Gly	Phe	Asp	Pro	Ser	Val	Val	Lys	Asp	Pro	Leu	Phe	Tyr
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 Thr Arg Ile Gln Ala Gly Glu Glu Lys Leu
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<210> 10
 <211> 2277
 <212> DNA
 <213> Mus musculus

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 gccttgctgct gcttggtctg gcattgctgg gcagaccctg gatcagctcc tggatgcccc 240
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 ggcaagcact ggcattggcct gaccgggtgg ccttggtgtg tactgggtct gagggctcct 480
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 agctggtaaa gtcacggctg gtgcgtgagg gttttgatgt ggggatcatt gctgaccccc 2040
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 tgtagagatt gacactagtc agcttcacaa agttgtccgg gttccagatg cccatggccc 2220
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<210> 11
 <211> 662
 <212> PRT
 <213> Mus musculus

<400> 11
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Pro	His	Trp	Leu	Ser	Leu	Val	Gly	Ala	Ala	Leu	Thr	Leu	Phe	Leu	Leu
		35					40					45			
Pro	Leu	Gln	Pro	Pro	Pro	Gly	Leu	Arg	Trp	Leu	His	Lys	Asp	Val	Ala
		50				55					60				
Phe	Thr	Phe	Lys	Met	Leu	Phe	Tyr	Gly	Leu	Lys	Phe	Arg	Arg	Arg	Leu
65					70					75					80
Asn	Lys	His	Pro	Pro	Glu	Thr	Phe	Val	Asp	Ala	Leu	Glu	Arg	Gln	Ala
				85					90					95	
Leu	Ala	Trp	Pro	Asp	Arg	Val	Ala	Leu	Val	Cys	Thr	Gly	Ser	Glu	Gly
			100					105					110		
Ser	Ser	Ile	Thr	Asn	Ser	Gln	Leu	Asp	Ala	Arg	Ser	Cys	Gln	Ala	Ala
		115					120					125			
Trp	Val	Leu	Lys	Ala	Lys	Leu	Lys	Asp	Ala	Val	Ile	Gln	Asn	Thr	Arg
	130					135					140				
Asp	Ala	Ala	Ala	Ile	Leu	Val	Leu	Pro	Ser	Lys	Thr	Ile	Ser	Ala	Leu
145					150					155					160
Ser	Val	Phe	Leu	Gly	Leu	Ala	Lys	Leu	Gly	Cys	Pro	Val	Ala	Trp	Ile
				165					170					175	
Asn	Pro	His	Ser	Arg	Gly	Met	Pro	Leu	Leu	His	Ser	Val	Arg	Ser	Ser
			180					185					190		
Gly	Ala	Ser	Val	Leu	Ile	Val	Asp	Pro	Asp	Leu	Gln	Glu	Asn	Leu	Glu
	195						200					205			
Glu	Val	Leu	Pro	Lys	Leu	Leu	Ala	Glu	Asn	Ile	His	Cys	Phe	Tyr	Leu
	210					215					220				
Gly	His	Ser	Ser	Pro	Thr	Pro	Gly	Val	Glu	Ala	Leu	Gly	Ala	Ser	Leu
225					230					235					240
Asp	Ala	Ala	Pro	Ser	Asp	Pro	Val	Pro	Ala	Ser	Leu	Arg	Ala	Thr	Ile
				245					250					255	
Lys	Trp	Lys	Ser	Pro	Ala	Ile	Phe	Ile	Phe	Thr	Ser	Gly	Thr	Thr	Gly
			260					265					270		
Leu	Pro	Lys	Pro	Ala	Ile	Leu	Ser	His	Glu	Arg	Val	Ile	Gln	Val	Ser
	275						280					285			
Asn	Val	Leu	Ser	Phe	Cys	Gly	Cys	Arg	Ala	Asp	Asp	Val	Val	Tyr	Asp
	290					295				300					
Val	Leu	Pro	Leu	Tyr	His	Thr	Ile	Gly	Leu	Val	Leu	Gly	Phe	Leu	Gly
305					310					315					320
Cys	Leu	Gln	Val	Gly	Ala	Thr	Cys	Val	Leu	Ala	Pro	Lys	Phe	Ser	Ala
				325					330					335	
Ser	Arg	Phe	Trp	Ala	Glu	Cys	Arg	Gln	His	Gly	Val	Thr	Val	Ile	Leu
			340					345					350		
Tyr	Val	Gly	Glu	Ile	Leu	Arg	Tyr	Leu	Cys	Asn	Val	Pro	Glu	Gln	Pro
		355					360					365			
Glu	Asp	Lys	Ile	His	Thr	Val	Arg	Leu	Ala	Met	Gly	Thr	Gly	Leu	Arg
	370					375					380				
Ala	Asn	Val	Trp	Lys	Asn	Phe	Gln	Gln	Arg	Phe	Gly	Pro	Ile	Arg	Ile
385					390					395					400
Trp	Glu	Phe	Tyr	Gly	Ser	Thr	Glu	Gly	Asn	Val	Gly	Leu	Met	Asn	Tyr
				405					410					415	
Val	Gly	His	Cys	Gly	Ala	Val	Gly	Arg	Thr	Ser	Cys	Ile	Leu	Arg	Met
			420					425					430		
Leu	Thr	Pro	Phe	Glu	Leu	Val	Gln	Phe	Asp	Ile	Glu	Thr	Ala	Glu	Pro
		435					440					445			
Leu	Arg	Asp	Lys	Gln	Gly	Phe	Cys	Ile	Pro	Val	Glu	Pro	Gly	Lys	Pro
	450					455					460				
Gly	Leu	Leu	Leu	Thr	Lys	Val	Arg	Lys	Asn	Gln	Pro	Phe	Leu	Gly	Tyr
465					470					475					480

Arg Gly Ser Gln Ala Glu Ser Asn Arg Lys Leu Val Ala Asn Val Arg
 485 490 495
 Arg Val Gly Asp Leu Tyr Phe Asn Thr Gly Asp Val Leu Thr Leu Asp
 500 505 510
 Gln Glu Gly Phe Phe Tyr Phe Gln Asp Arg Leu Gly Asp Thr Phe Arg
 515 520 525
 Trp Lys Gly Glu Asn Val Ser Thr Gly Glu Val Glu Cys Val Leu Ser
 530 535 540
 Ser Leu Asp Phe Leu Glu Val Asn Val Tyr Gly Val Pro Val Pro
 545 550 555 560
 Gly Cys Glu Gly Lys Val Gly Met Ala Ala Val Lys Leu Ala Pro Gly
 565 570 575
 Lys Thr Phe Asp Gly Gln Lys Leu Tyr Gln His Val Arg Ser Trp Leu
 580 585 590
 Pro Ala Tyr Ala Thr Pro His Phe Ile Arg Ile Gln Asp Ser Leu Glu
 595 600 605
 Ile Thr Asn Thr Tyr Lys Leu Val Lys Ser Arg Leu Val Arg Glu Gly
 610 615 620
 Phe Asp Val Gly Ile Ile Ala Asp Pro Leu Tyr Ile Leu Asp Asn Lys
 625 630 635 640
 Ala Gln Thr Phe Arg Ser Leu Met Pro Asp Val Tyr Gln Ala Val Cys
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 Glu Gly Thr Trp Asn Leu
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<210> 12

<211> 1622

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (1)...(1622)

<223> n = A,T,C or G

<400> 12

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catggagggtc	tgaagtcact	ttttccactc	ctgccttata	cattttatact	tctggaacca	120
caggtcttcc	aaaagcagcc	atgatcactc	atcagcgcac	atggtatgga	actggcctca	180
cttttgtaag	cggattgaag	gcagatgatg	tcattctatat	cactctgccc	ttttaccaca	240
gtgctgcact	actgattggc	attcacggat	gtattgtggc	tgggtgctact	cttgccctgc	300
ggactaaatt	ttcagccagc	cagttttggg	atgactgcag	aaaatacaac	gtcactgtca	360
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gtgatcataa	agtgagactg	gcactgggaa	atggcttacg	aggagatgtg	tggagacaat	480
ttgtcaagag	atttggggac	atatgcatct	atgagttcta	tgctgccact	gaaggcaata	540
ttggatttat	gaattatgcg	agaaaagtgt	gtgctgttgg	aagagtaaac	tacctacaga	600
aaaaaatcat	aacttatgac	ctgattaaat	atgatgtgga	gaaagatgaa	cctgtccgtg	660
atgaaaatgg	atattgcgtc	agagttccca	aagggtgaagt	tggacttctg	gtttgcaaaa	720
tcacacaact	tacaccattt	aatggctatg	ctggagcaaa	ggctcagaca	gagaagaaaa	780
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gggaaaatgt	ggccaccact	gaagtgtgtg	atatagttgg	actggttgat	ttttttccaa	960
ggaagtaaaa	tgtttatggg	agtgcatggg	ccaagatnat	ggaggttcga	attggcatgg	1020
cnttcnttc	aaaatggaaa	gaaaaccatg	gaatttgatg	gaaagaaatt	ttttcagnac	1080
attgctgata	accnacctag	ttatgcaagg	ccccggtttt	ntaagaanac	aggacaccat	1140
tgagatcact	ggaattttta	aacaccgcaa	aatgaccttt	ggtggaggag	ggctttaacc	1200
cngctgtcat	caaagatgcc	ttgtattttc	ttggatgaca	cagcaaaaat	gtatgtgcct	1260
atgactgagg	acatntataa	tgccataagt	gntaaaaccc	tgaaattntg	aatattccca	1320
ggaggataat	tcaacatttc	cagaaagaaa	ctgaatggac	agccacttga	tataatccaa	1380

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ctttaatttg attgaagatt gtgaggaaat tttgtaggaa atttgcatac ccgtaaaggg 1440
agactttttt aaataacagt tgagtctttg caagtaaaaa gatttagaga ttattatttt 1500
tcagtgtgca cctactgttt gtatttgcaa actgagcttg ttggagggaa ggcattattt 1560
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aa 1622

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<210> 13
<211> 286
<212> PRT
<213> Homo sapiens

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<400> 13
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20 25 30
Leu Lys Ala Asp Asp Val Ile Tyr Ile Thr Leu Pro Phe Tyr His Ser
35 40 45
Ala Ala Leu Leu Ile Gly Ile His Gly Cys Ile Val Ala Gly Ala Thr
50 55 60
Leu Ala Leu Arg Thr Lys Phe Ser Ala Ser Gln Phe Trp Asp Asp Cys
65 70 75 80
Arg Lys Tyr Asn Val Thr Val Ile Gln Tyr Ile Gly Glu Leu Leu Arg
85 90 95
Tyr Leu Cys Asn Ser Pro Gln Lys Pro Asn Asp Arg Asp His Lys Val
100 105 110
Arg Leu Ala Leu Gly Asn Gly Leu Arg Gly Asp Val Trp Arg Gln Phe
115 120 125
Val Lys Arg Phe Gly Asp Ile Cys Ile Tyr Glu Phe Tyr Ala Ala Thr
130 135 140
Glu Gly Asn Ile Gly Phe Met Asn Tyr Ala Arg Lys Val Gly Ala Val
145 150 155 160
Gly Arg Val Asn Tyr Leu Gln Lys Lys Ile Ile Thr Tyr Asp Leu Ile
165 170 175
Lys Tyr Asp Val Glu Lys Asp Glu Pro Val Arg Asp Glu Asn Gly Tyr
180 185 190
Cys Val Arg Val Pro Lys Gly Glu Val Gly Leu Leu Val Cys Lys Ile
195 200 205
Thr Gln Leu Thr Pro Phe Asn Gly Tyr Ala Gly Ala Lys Ala Gln Thr
210 215 220
Glu Lys Lys Lys Leu Arg Asp Val Phe Lys Lys Gly Asp Leu Tyr Phe
225 230 235 240
Asn Ser Gly Asp Leu Leu Met Val Asp His Glu Asn Phe Ile Tyr Phe
245 250 255
His Asp Arg Val Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala
260 265 270
Thr Thr Glu Val Ala Asp Ile Val Gly Leu Val Asp Phe Phe
275 280 285

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<210> 14
<211> 753
<212> DNA
<213> Homo sapiens

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gatgaccaag gttttctccg cttccatgat cgtactggag acaccttcag gtggaaaggg 180
gagaatgtgg ccacaaccga ggtggcagag gtcttcgagg ccctagattt tcttcaggag 240

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gtgaacgtct atggagtcac tgtgccaggg catgaaggca gggctggaat ggcagcccta 300
gttctgctgc cccccacgc tttggacctt atgcagctct acaccacgt gtctgagaac 360
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accttcaaac agcagaaagt tcggatggca aatgagggct tcgacccag caccctgtct 480
gacctactgt acgttctgga ccaggctgta ggtgcctacc tgcccctcac aactgcccgg 540
tacagcgccc tcctggcagg aaaccttcga atctgagaac ttccacacct gaggcacctg 600
agagaggaac tctgtggggg gggggccggt gcaggtgtac tgggctgtca gggatctttt 660
ctataccaga actgcggtca ctattttgta ataaatgtgg ctggagctga tccagctgtc 720
tctgacctac aaaaaaaaaa aaaaaaaaaa aaa 753

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<210> 15
<211> 191
<212> PRT
<213> Homo sapiens

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<400> 15
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Gln Gly Lys Leu Leu Lys Asp Val Phe Arg Pro Gly Asp Val Phe Phe
20 25 30
Asn Thr Gly Asp Leu Leu Val Cys Asp Asp Gln Gly Phe Leu Arg Phe
35 40 45
His Asp Arg Thr Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala
50 55 60
Thr Thr Glu Val Ala Glu Val Phe Glu Ala Leu Asp Phe Leu Gln Glu
65 70 75 80
Val Asn Val Tyr Gly Val Thr Val Pro Gly His Glu Gly Arg Ala Gly
85 90 95
Met Ala Ala Leu Val Leu Arg Pro Pro His Ala Leu Asp Leu Met Gln
100 105 110
Leu Tyr Thr His Val Ser Glu Asn Leu Pro Pro Tyr Ala Arg Pro Arg
115 120 125
Phe Leu Arg Leu Gln Glu Ser Leu Ala Thr Thr Glu Thr Phe Lys Gln
130 135 140
Gln Lys Val Arg Met Ala Asn Glu Gly Phe Asp Pro Ser Thr Leu Ser
145 150 155 160
Asp Pro Leu Tyr Val Leu Asp Gln Ala Val Gly Ala Tyr Leu Pro Leu
165 170 175
Thr Thr Ala Arg Tyr Ser Ala Leu Leu Ala Gly Asn Leu Arg Ile
180 185 190

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<210> 16
<211> 734
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (1)...(734)
<223> n = A,T,C or G

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gcagtccatc tggaccaact tttccagccg cttccacata ccccagggtg ctgagttyta 180
cggggccaca gagtgaact gtagcctggg caacttcgac agccagggtg gggcctgtgg 240
tttcaatagc cgcatacctgt ccttcgtgta ccccatccgg ttggtacgtg tcaacgagga 300
caccatggag ctgatccggg gggccgacgg cgtctgcatt cctgccagc caggtgagcc 360
gggccagctg gtgggcccga tcatccagaa agaccccctg cgccgcttcg atggctacct 420

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caaccagggc	gccaacaaca	agaagattgc	caaggatgtc	ttcaagaagg	gggaccaggg	480
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cactggggac	acgttccgct	ggaaaggtga	gaacgtgtcc	accaccgagg	tggaaggcac	600
actcagccgc	ctgctggaca	tggctgacgt	ggccgtgtat	ggtgtcgagg	tgccaggaac	660
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<210> 17
 <211> 213
 <212> PRT
 <213> Homo sapiens

<400> 17

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			20					25					30		
Ser	Ile	Trp	Thr	Asn	Phe	Ser	Ser	Arg	Phe	His	Ile	Pro	Gln	Val	Ala
		35					40					45			
Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu	Gly	Asn	Phe	Asp
	50					55					60				
Ser	Gln	Val	Gly	Ala	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Ser	Phe	Val
65					70				75					80	
Tyr	Pro	Ile	Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Ile
				85					90					95	
Arg	Gly	Pro	Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro	Gly	Glu	Pro	Gly
			100					105					110		
Gln	Leu	Val	Gly	Arg	Ile	Ile	Gln	Lys	Asp	Pro	Leu	Arg	Arg	Phe	Asp
		115					120					125			
Gly	Tyr	Leu	Asn	Gln	Gly	Ala	Asn	Asn	Lys	Lys	Ile	Ala	Lys	Asp	Val
	130					135					140				
Phe	Lys	Lys	Gly	Asp	Gln	Ala	Tyr	Leu	Thr	Gly	Asp	Val	Leu	Val	Met
145					150					155				160	
Asp	Glu	Leu	Gly	Tyr	Leu	Tyr	Phe	Arg	Asp	Arg	Thr	Gly	Asp	Thr	Phe
				165					170					175	
Arg	Trp	Lys	Gly	Glu	Asn	Val	Ser	Thr	Thr	Glu	Val	Glu	Gly	Thr	Leu
			180					185					190		
Ser	Arg	Leu	Leu	Asp	Met	Ala	Asp	Val	Ala	Val	Tyr	Gly	Val	Glu	Val
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<210> 18
 <211> 1278
 <212> DNA
 <213> Homo sapiens

<220>
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 <223> n = A,T,C or G

<400> 18

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cagcatggcg	tgacagtgat	cctgtatgtg	ggcgagctcc	tgcgntactt	gtgtaacatt	180
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gctgatgtgt	ggggagacct	tccagcagcg	tttcggctct	atttcggatc	tngggaagtc	300
ttacgggcty	ccacagaagg	gcaacatggg	gcttttagttc	aactattgtt	gggggcgctg	360

cggggscctg	grggcaaaga	tggagcttgc	ctcctccgaa	tgctgtcccc	ctttgagctg	420
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acctggaggc	tctgatcacc	tggccaaccc	actggggtag	ggatcaaagc	cagccacccc	1140
cacccaaca	cactcgggtg	ccctttcatc	ctgggcctgt	gtgaatccca	gcctggccat	1200
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<210> 19
 <211> 199
 <212> PRT
 <213> Homo sapiens

<400> 19																		
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Gly	Pro	Gly	Gly	Lys	Asp	Gly	Ala	Cys	Leu	Leu	Arg	Met	Leu	Ser	Pro			
			20					25					30					
Phe	Glu	Leu	Val	Gln	Phe	Asp	Met	Glu	Ala	Ala	Glu	Pro	Val	Arg	Asp			
			35				40						45					
Asn	Gln	Gly	Phe	Cys	Ile	Pro	Val	Gly	Leu	Gly	Glu	Pro	Gly	Leu	Leu			
			50				55					60						
Leu	Thr	Lys	Val	Val	Ser	Gln	Gln	Pro	Phe	Val	Gly	Tyr	Arg	Gly	Pro			
65						70				75					80			
Arg	Glu	Leu	Ser	Glu	Arg	Lys	Leu	Val	Arg	Asn	Val	Arg	Gln	Ser	Gly			
				85				90						95				
Asp	Val	Tyr	Tyr	Asn	Thr	Gly	Asp	Val	Leu	Ala	Met	Asp	Arg	Glu	Gly			
			100				105						110					
Phe	Leu	Tyr	Phe	Arg	Asp	Arg	Leu	Gly	Asp	Thr	Phe	Arg	Trp	Lys	Gly			
			115				120					125						
Glu	Asn	Val	Ser	Thr	His	Glu	Val	Glu	Gly	Val	Leu	Ser	Gln	Val	Asp			
			130				135				140							
Phe	Leu	Gln	Gln	Val	Asn	Val	Tyr	Gly	Val	Cys	Val	Pro	Gly	Cys	Glu			
145					150					155					160			
Gly	Lys	Val	Gly	Met	Ala	Ala	Val	Ala	Leu	Ala	Pro	Gly	Gln	Thr	Phe			
				165				170						175				
Asp	Gly	Glu	Lys	Leu	Tyr	Gln	His	Val	Arg	Ala	Trp	Leu	Pro	Ala	Tyr			
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<210> 20
 <211> 1361
 <212> DNA
 <213> Homo sapiens

<400> 20									
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gagagaagga	gaaaaggatc	ataaggtgcg	tttggcaatt	ggaaatggca	tacggagtga	180			

tgtatggaga	gaatttttag	acagatttgg	aaatataaag	gtgtgtgaac	tttatgcagc	240
taccgaatca	agcatatctt	tcatgaacta	cactgggaga	attggagcaa	ttgggagaac	300
aaatttgttt	tacaaacttc	tttccacttt	tgacttaata	aagtatgact	ttcagaaaga	360
tgaacccatg	agaaatgagc	agggttgggt	attcatgaga	aaaaggagac	ctggacttct	420
catttctcga	gtgaatgcaa	aaaatccctt	ctttggctat	gctgggcctt	ataagcacac	480
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cttaatagtc	caggatcagg	acaatttcct	ttatttttgg	gacogtactg	gagacacttt	600
cagatggaaa	ggagaaaatg	tcgcaaccac	tgaggttgct	gatgttattg	gaatgttgga	660
tttcatacag	gaagcaaacg	tctatgggtg	ggctatatca	ggttatgaag	gaagagcagg	720
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gaccagggaa	ctttatgatc	aaataatgtt	aggggaaata	aaactttaag	atttttatat	1020
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cttttttatct	atttggagat	tcagtgcata	actaagtatt	ttccttaata	ctaaagattt	1260
taaataataa	atagtggcta	gcggtttgga	caatcactaa	aatgtactt	tctaataagt	1320
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<210> 21
 <211> 335
 <212> PRT
 <213> Homo sapiens

<400> 21

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			20					25					30		
Arg	Tyr	Leu	Cys	Lys	Gln	Ser	Lys	Arg	Glu	Gly	Glu	Lys	Asp	His	Lys
		35					40					45			
Val	Arg	Leu	Ala	Ile	Gly	Asn	Gly	Ile	Arg	Ser	Asp	Val	Trp	Arg	Glu
		50				55					60				
Phe	Leu	Asp	Arg	Phe	Gly	Asn	Ile	Lys	Val	Cys	Glu	Leu	Tyr	Ala	Ala
65					70					75				80	
Thr	Glu	Ser	Ser	Ile	Ser	Phe	Met	Asn	Tyr	Thr	Gly	Arg	Ile	Gly	Ala
			85					90					95		
Ile	Gly	Arg	Thr	Asn	Leu	Phe	Tyr	Lys	Leu	Leu	Ser	Thr	Phe	Asp	Leu
			100					105					110		
Ile	Lys	Tyr	Asp	Phe	Gln	Lys	Asp	Glu	Pro	Met	Arg	Asn	Glu	Gln	Gly
		115					120					125			
Trp	Val	Phe	Met	Arg	Lys	Arg	Arg	Pro	Gly	Leu	Leu	Ile	Ser	Arg	Val
		130				135					140				
Asn	Ala	Lys	Asn	Pro	Phe	Phe	Gly	Tyr	Ala	Gly	Pro	Tyr	Lys	His	Thr
145				150						155				160	
Lys	Asp	Lys	Leu	Leu	Cys	Asp	Val	Phe	Lys	Lys	Gly	Asp	Val	Tyr	Leu
			165						170					175	
Asn	Thr	Gly	Asp	Leu	Ile	Val	Gln	Asp	Gln	Asp	Asn	Phe	Leu	Tyr	Phe
		180						185					190		
Trp	Asp	Arg	Thr	Gly	Asp	Thr	Phe	Arg	Trp	Lys	Gly	Glu	Asn	Val	Ala
		195					200					205			
Thr	Thr	Glu	Val	Ala	Asp	Val	Ile	Gly	Met	Leu	Asp	Phe	Ile	Gln	Glu
	210				215						220				
Ala	Asn	Val	Tyr	Gly	Val	Ala	Ile	Ser	Gly	Tyr	Glu	Gly	Arg	Ala	Gly
225				230						235				240	
Met	Ala	Ser	Ile	Ile	Leu	Lys	Pro	Asn	Thr	Ser	Leu	Asp	Leu	Glu	Lys
			245						250					255	

Val Tyr Glu Gln Val Val Thr Phe Leu Pro Ala Tyr Ala Cys Pro Arg
 260 265 270
 Phe Leu Arg Ile Gln Glu Lys Met Glu Ala Thr Gly Thr Phe Lys Leu
 275 280 285
 Leu Lys His Gln Leu Val Glu Asp Gly Phe Asn Pro Leu Lys Ile Ser
 290 295 300
 Glu Pro Leu Tyr Phe Met Asp Asn Leu Lys Lys Ser Tyr Val Leu Leu
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 325 330 335

<210> 22
 <211> 2007
 <212> DNA
 <213> Mycobacterium tuberculosis

<400> 22
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 ggcgatcagc agctgacctt ccgcgacgct aacgccaccg ccaaccggta cgcgcgggtg 360
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 atctgggatg agttcaccac ccgcttcggg gtcgcgcggg tgtgcgagtt ctacgccgcc 1140
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<210> 23
 <211> 597
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 23

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Arg	Gly	Ala	Met	Thr	Gly	Leu	Leu	Ala	Arg	Pro	Asn	Ser	Lys	Ala	Ser	35	40	45	
Ile	Gly	Thr	Val	Phe	Gln	Asp	Arg	Ala	Ala	Arg	Tyr	Gly	Asp	Arg	Val	50	55	60	
Phe	Leu	Lys	Phe	Gly	Asp	Gln	Gln	Leu	Thr	Tyr	Arg	Asp	Ala	Asn	Ala	65	70	75	80
Thr	Ala	Asn	Arg	Tyr	Ala	Ala	Val	Leu	Ala	Ala	Arg	Gly	Val	Gly	Pro	85	90	95	
Gly	Asp	Val	Val	Gly	Ile	Met	Leu	Arg	Asn	Ser	Pro	Ser	Thr	Val	Leu	100	105	110	
Ala	Met	Leu	Ala	Thr	Val	Lys	Cys	Gly	Ala	Ile	Ala	Gly	Met	Leu	Asn	115	120	125	
Tyr	His	Gln	Arg	Gly	Glu	Val	Leu	Ala	His	Ser	Leu	Gly	Leu	Leu	Asp	130	135	140	
Ala	Lys	Val	Leu	Ile	Ala	Glu	Ser	Asp	Leu	Val	Ser	Ala	Val	Ala	Glu	145	150	155	160
Cys	Gly	Ala	Ser	Arg	Gly	Arg	Val	Ala	Gly	Asp	Val	Leu	Thr	Val	Glu	165	170	175	
Asp	Val	Glu	Arg	Phe	Ala	Thr	Thr	Ala	Pro	Ala	Thr	Asn	Pro	Ala	Ser	180	185	190	
Ala	Ser	Ala	Val	Gln	Ala	Lys	Asp	Thr	Ala	Phe	Tyr	Ile	Phe	Thr	Ser	195	200	205	
Gly	Thr	Thr	Gly	Phe	Pro	Lys	Ala	Ser	Val	Met	Thr	His	His	Arg	Trp	210	215	220	
Leu	Arg	Ala	Leu	Ala	Val	Phe	Gly	Gly	Met	Gly	Leu	Arg	Leu	Lys	Gly	225	230	235	240
Ser	Asp	Thr	Leu	Tyr	Ser	Cys	Leu	Pro	Leu	Tyr	His	Asn	Asn	Ala	Leu	245	250	255	
Thr	Val	Ala	Val	Ser	Ser	Val	Ile	Asn	Ser	Gly	Ala	Thr	Leu	Ala	Leu	260	265	270	
Gly	Lys	Ser	Phe	Ser	Ala	Ser	Arg	Phe	Trp	Asp	Glu	Val	Ile	Ala	Asn	275	280	285	
Arg	Ala	Thr	Ala	Phe	Val	Tyr	Ile	Gly	Glu	Ile	Cys	Arg	Tyr	Leu	Leu	290	295	300	
Asn	Gln	Pro	Ala	Lys	Pro	Thr	Asp	Arg	Ala	His	Gln	Val	Arg	Val	Ile	305	310	315	320
Cys	Gly	Asn	Gly	Leu	Arg	Pro	Glu	Ile	Trp	Asp	Glu	Phe	Thr	Thr	Arg	325	330	335	
Phe	Gly	Val	Ala	Arg	Val	Cys	Glu	Phe	Tyr	Ala	Ala	Ser	Glu	Gly	Asn	340	345	350	
Ser	Ala	Phe	Ile	Asn	Ile	Phe	Asn	Val	Pro	Arg	Thr	Ala	Gly	Val	Ser	355	360	365	
Pro	Met	Pro	Leu	Ala	Phe	Val	Glu	Tyr	Asp	Leu	Asp	Thr	Gly	Asp	Pro	370	375	380	
Leu	Arg	Asp	Ala	Ser	Gly	Arg	Val	Arg	Arg	Val	Pro	Asp	Gly	Glu	Pro	385	390	395	400
Gly	Leu	Leu	Leu	Ser	Arg	Val	Asn	Arg	Leu	Gln	Pro	Phe	Asp	Gly	Tyr	405	410	415	
Thr	Asp	Pro	Val	Ala	Ser	Glu	Lys	Lys	Leu	Val	Arg	Asn	Ala	Phe	Arg	420	425	430	
Asp	Gly	Asp	Cys	Trp	Phe	Asn	Thr	Gly	Asp	Val	Met	Ser	Pro	Gln	Gly	435	440	445	
Met	Gly	His	Ala	Ala	Phe	Val	Asp	Arg	Leu	Gly	Asp	Thr	Phe	Arg	Trp	450	455	460	

Lys Gly Glu Asn Val Ala Thr Thr Gln Val Glu Ala Ala Leu Ala Ser
 465 470 475 480
 Asp Gln Thr Val Glu Glu Cys Thr Val Tyr Gly Val Gln Ile Pro Arg
 485 490 495
 Thr Gly Gly Arg Ala Gly Met Ala Ala Ile Thr Leu Arg Ala Gly Ala
 500 505 510
 Glu Phe Asp Gly Gln Ala Leu Ala Arg Thr Val Tyr Gly His Leu Pro
 515 520 525
 Gly Tyr Ala Leu Pro Leu Phe Val Arg Val Val Gly Ser Leu Ala His
 530 535 540
 Thr Thr Thr Phe Lys Ser Arg Lys Val Glu Leu Arg Asn Gln Ala Tyr
 545 550 555 560
 Gly Ala Asp Ile Glu Asp Pro Leu Tyr Val Leu Ala Gly Pro Asp Glu
 565 570 575
 Gly Tyr Val Pro Tyr Tyr Ala Glu Tyr Pro Glu Glu Val Ser Leu Gly
 580 585 590
 Arg Arg Pro Gln Gly
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<210> 24
 <211> 3704
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
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<400> 24
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 cctgcctcct gcctgagctt ctgggagact gaaggcacgg cttgcagctt cagg atg 177
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 Arg Ala Pro Gly Ala Gly Ala Ala Ser Val Val Ser Leu Ala Leu Leu
 5 10 15
 tgg ctg ctg ggg ctg ccg tgg acc tgg agc gcg gca gcg gcg ctc ggc 273
 Trp Leu Leu Gly Leu Pro Trp Thr Trp Ser Ala Ala Ala Ala Leu Gly
 20 25 30
 gtg tac gtg ggc agc ggc ggc tgg cgc ttc ctg cgc atc gtc tgc aag 321
 Val Tyr Val Gly Ser Gly Gly Trp Arg Phe Leu Arg Ile Val Cys Lys
 35 40 45
 acc gcg agg cga gac ctc ttc ggt ctc tct gtg ctg atc cgc gtg cgc 369
 Thr Ala Arg Arg Asp Leu Phe Gly Leu Ser Val Leu Ile Arg Val Arg
 50 55 60 65
 ctg gag ctg ccg ccg cac cag cgt gcc ggc cac acc atc ccg cgc atc 417
 Leu Glu Leu Arg Arg His Gln Arg Ala Gly His Thr Ile Pro Arg Ile
 70 75 80
 ttt cag gcg gta gtg cag cga cag ccc gag cgc ctg gcg ctg gtg gat 465
 Phe Gln Ala Val Gln Arg Gln Pro Glu Arg Leu Ala Leu Val Asp
 85 90 95
 gcc ggg acc ggc gag tgc tgg acc ttt gcg cag ctg gac gcc tac tcc 513
 Ala Gly Thr Gly Glu Cys Trp Thr Phe Ala Gln Leu Asp Ala Tyr Ser
 100 105 110
 aat gcg gta gcc aac ctc ttc cgc cag ctg ggc ttc gcg ccg ggc gac 561
 Asn Ala Val Ala Asn Leu Phe Arg Gln Leu Gly Phe Ala Pro Gly Asp
 115 120 125

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Val	Val	Ala	Ile	Phe	Leu	Glu	Gly	Arg	Pro	Glu	Phe	Val	Gly	Leu	Trp	
130					135					140					145	
ctg	ggc	ctg	gcc	aag	gcg	ggc	atg	gag	gcc	gcg	ctg	ctc	aac	gtg	aac	657
Leu	Gly	Leu	Ala	Lys	Ala	Gly	Met	Glu	Ala	Ala	Leu	Leu	Asn	Val	Asn	
				150					155						160	
ctg	cgg	cgc	gag	ccc	ctg	gcc	ttc	tgc	ctg	ggc	acc	tcg	ggc	gct	aag	705
Leu	Arg	Arg	Glu	Pro	Leu	Ala	Phe	Cys	Leu	Gly	Thr	Ser	Gly	Ala	Lys	
				165				170					175			
gcc	ctg	atc	ttt	gga	gga	gaa	atg	gtg	gcg	gcg	gtg	gcc	gaa	gtg	agc	753
Ala	Leu	Ile	Phe	Gly	Gly	Glu	Met	Val	Ala	Ala	Val	Ala	Glu	Val	Ser	
				180			185						190			
ggg	cat	ctg	ggg	aaa	agt	ttg	atc	aag	ttc	tgc	tct	gga	gac	ttg	ggg	801
Gly	His	Leu	Gly	Lys	Ser	Leu	Ile	Lys	Phe	Cys	Ser	Gly	Asp	Leu	Gly	
	195					200						205				
ccc	gag	ggc	atc	ttg	ccg	gac	acc	cac	ctc	ctg	gac	ccg	ctg	ctg	aag	849
Pro	Glu	Gly	Ile	Leu	Pro	Asp	Thr	His	Leu	Leu	Asp	Pro	Leu	Leu	Lys	
	210				215					220					225	
gag	gcc	tct	act	gcc	ccc	ttg	gca	cag	atc	ccc	agc	aag	ggc	atg	gac	897
Glu	Ala	Ser	Thr	Ala	Pro	Leu	Ala	Gln	Ile	Pro	Ser	Lys	Gly	Met	Asp	
				230					235						240	
gat	cgt	ctt	ttc	tac	atc	tac	acg	tcg	ggg	acc	acc	ggg	ctg	ccc	aag	945
Asp	Arg	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	
				245				250					255			
gct	gcc	att	gtc	gtg	cac	agc	agg	tac	tac	cgc	atg	gca	gcc	ttc	ggc	993
Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ala	Phe	Gly	
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His	His	Ala	Tyr	Arg	Met	Gln	Ala	Ala	Asp	Val	Leu	Tyr	Asp	Cys	Leu	
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Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Ile	Gly	Val	Gly	Gln	Cys	Leu	
	290				295					300				305		
atc	tat	ggg	ctg	aca	gtc	gtc	ctc	cgc	aag	aaa	ttc	tcg	gcc	agc	cgc	1137
Ile	Tyr	Gly	Leu	Thr	Val	Val	Leu	Arg	Lys	Lys	Phe	Ser	Ala	Ser	Arg	
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ttc	tgg	gac	gac	tgc	atc	aag	tac	aac	tgc	acg	gtg	gtt	cag	tac	atc	1185
Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr	Ile	
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ggg	gag	atc	tgc	cgc	tac</											

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Leu Val Gly Gln Ile Asn Gln Gln Asp Pro Leu Arg Arg Phe Asp Gly	
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Tyr Val Ser Glu Ser Ala Thr Ser Lys Lys Ile Ala His Ser Val Phe	
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Ser Lys Gly Asp Ser Ala Tyr Leu Ser Gly Asp Val Leu Val Met Asp	
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Trp Arg Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Val Leu Ser	
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Pro Tyr Ala Arg Pro Ile Phe Leu Arg Leu Leu Pro Gln Val Asp Thr	
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Lys Thr Ala Arg Arg Asp Leu Phe Gly Leu Ser Val Leu Ile Arg Val
50      55      60
Arg Leu Glu Leu Arg Arg His Gln Arg Ala Gly His Thr Ile Pro Arg
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Ile Phe Gln Ala Val Val Gln Arg Gln Pro Glu Arg Leu Ala Leu Val
85      90      95
Asp Ala Gly Thr Gly Glu Cys Trp Thr Phe Ala Gln Leu Asp Ala Tyr
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Trp Leu Gly Leu Ala Lys Ala Gly Met Glu Ala Ala Leu Leu Asn Val
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Lys Ala Leu Ile Phe Gly Gly Glu Met Val Ala Ala Val Ala Glu Val
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Ser Gly His Leu Gly Lys Ser Leu Ile Lys Phe Cys Ser Gly Asp Leu
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Gly Pro Glu Gly Ile Leu Pro Asp Thr His Leu Leu Asp Pro Leu Leu
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Lys Glu Ala Ser Thr Ala Pro Leu Ala Gln Ile Pro Ser Lys Gly Met
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Asp Asp Arg Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly Leu Pro
245     250     255
Lys Ala Ala Ile Val Val His Ser Arg Tyr Tyr Arg Met Ala Ala Phe
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Gly His His Ala Tyr Arg Met Gln Ala Ala Asp Val Leu Tyr Asp Cys
275     280     285
Leu Pro Leu Tyr His Ser Ala Gly Asn Ile Ile Gly Val Gly Gln Cys
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Arg Phe Trp Asp Asp Cys Ile Lys Tyr Asn Cys Thr Val Val Gln Tyr
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 Phe Ser Lys Gly Asp Ser Ala Tyr Leu Ser Gly Asp Val Leu Val Met
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 Asp Glu Leu Gly Tyr Met Tyr Phe Arg Asp Arg Ser Gly Asp Thr Phe
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 Arg Trp Arg Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Val Leu
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 Phe Asp Pro Arg Gln Thr Ser Asp Arg Leu Phe Phe Leu Asp Leu Lys
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 Met Leu Leu Gly Ala Ser Leu Val Gly
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Val	Leu	Leu	Phe	Ser	Lys	Leu	Val	Leu	Lys	Leu	Pro	Trp	Thr	Gln	Val	
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Val	Leu	Leu	Lys	Val	Lys	Ala	Lys	Val	Arg	Gln	Cys	Leu	Gln	Glu	Arg	
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Arg	Thr	Val	Pro	Ile	Leu	Phe	Ala	Ser	Thr	Val	Arg	Arg	His	Pro	Asp	
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Lys	Thr	Ala	Leu	Ile	Phe	Glu	Gly	Thr	Asp	Thr	His	Trp	Thr	Phe	Arg	
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cag	ctg	gat	gag	tac	tca	agc	agt	gta	gcc	aac	ttc	ctg	cag	gcc	cgg	570
Gln	Leu	Asp	Glu	Tyr	Ser	Ser	Ser	Val	Ala	Asn	Phe	Leu	Gln	Ala	Arg	
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Glu	Phe	Val	Gly	Leu	Trp	Leu	Gly	Met	Ala	Lys	Leu	Gly	Val	Glu	Ala	
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Ala	Leu	Ile	Asn	Thr	Asn	Leu	Arg	Arg	Asp	Ala	Leu	Leu	His	Cys	Leu	
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acc	acc	tgc	cgc	gca	cgg	gcc	ctt	gtc	ttt	ggc	agc	gaa	atg	gcc	tca	762
Thr	Thr	Ser	Arg	Ala	Arg	Ala	Leu	Val	Phe	Gly	Ser	Glu	Met	Ala	Ser	
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Ala	Ile	Cys	Glu	Val	His	Ala	Ser	Leu	Asp	Pro	Ser	Leu	Ser	Leu	Phe	
			190						195					200		
tgc	tct	ggc	tcc	tgg	gag	ccc	ggt	gcg	gtg	cct	cca	agc	aca	gaa	cac	858
Cys	Ser	Gly	Ser	Trp	Glu	Pro	Gly	Ala	Val	Pro	Pro	Ser	Thr	Glu	His	
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Asp	Lys	Gly	Phe	Thr	Asp	Lys	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	
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Val	Tyr	Asp	Cys	Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Val	Gly	
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 Lys Val Arg Gln Cys Leu Gln Glu Arg Arg Thr Val Pro Ile Leu Phe
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 Gly Ala Val Pro Pro Ser Thr Glu His Leu Asp Pro Leu Leu Lys Asp
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 Ala Pro Lys His Leu Pro Ser Cys Pro Asp Lys Gly Phe Thr Asp Lys
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 His Gln Val Arg Met Ala Leu Gly Asn Gly Leu Arg Gln Ser Ile Trp
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 Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser Arg Leu
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 Asp Leu Glu Arg Phe Ala Gln Val Leu Glu Lys Glu Leu Pro Leu Tyr
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<210> 28

<211> 1941

<212> DNA

<213> Homo sapiens

<400> 28

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<210> 29

<211> 1938

<212> DNA

<213> Mus musculus

<400> 29

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 <212> DNA
 <213> Homo sapiens

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Glu	Arg	Arg	His	Arg	Val	Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro
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Leu	Leu	Val	Gly	Gln	Ile	Asn	Gln	Gln	Asp	Pro	Leu	Arg	Arg	Phe	Asp
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Phe	Ser	Lys	Gly	Asp	Ser	Ala	Tyr	Leu	Ser	Gly	Asp	Val	Leu	Val	Met
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<212> PRT
<213> Mus musculus

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Lys Thr Ala Arg Arg Asp Leu Phe Gly Leu Ser Val Leu Ile Arg Val
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Arg Leu Glu Leu Arg Arg His Arg Arg Ala Gly Asp Thr Ile Pro Cys
65 70 75 80
Ile Phe Gln Ala Val Ala Arg Arg Gln Pro Glu Arg Leu Ala Leu Val
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Ser Asn Ala Val Ala Asn Leu Phe Arg Gln Leu Gly Phe Ala Pro Gly
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Asp Val Val Ala Val Phe Leu Glu Gly Arg Pro Glu Phe Val Gly Leu
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Trp Leu Gly Leu Ala Lys Ala Gly Val Val Ala Ala Leu Leu Asn Val
145 150 155 160
Asn Leu Arg Arg Glu Pro Leu Ala Phe Cys Leu Gly Thr Ser Ala Ala
165 170 175
Lys Ala Leu Ile Tyr Gly Gly Glu Met Ala Ala Ala Val Ala Glu Val
180 185 190
Ser Glu Gln Leu Gly Lys Ser Leu Lys Phe Cys Ser Gly Asp Leu
195 200 205
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Ala Glu Ala Pro Thr Thr Pro Leu Ala Gln Ala Pro Gly Lys Gly Met
225 230 235 240
Asp Asp Arg Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly Leu Pro
245 250 255
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260 265 270
Gly His His Ser Tyr Ser Met Arg Ala Ala Asp Val Leu Tyr Asp Cys
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Leu Pro Leu Tyr His Ser Ala Gly Asn Ile Met Gly Val Gly Gln Cys
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	515						520					525					
Glu	Val	Pro	Gly	Thr	Glu	Gly	Arg	Ala	Gly	Met	Ala	Ala	Val	Ala	Ser		
	530					535					540						
Pro	Thr	Gly	Asn	Cys	Asp	Leu	Glu	Arg	Phe	Ala	Gln	Val	Leu	Glu	Lys		
545					550					555				560			
Glu	Leu	Pro	Leu	Tyr	Ala	Arg	Pro	Ile	Phe	Leu	Arg	Leu	Leu	Pro	Glu		
			565						570					575			
Leu	His	Lys	Thr	Gly	Thr	Tyr	Lys	Phe	Gln	Lys	Thr	Glu	Leu	Arg	Lys		
			580					585					590				
Glu	Gly	Phe	Asp	Pro	Ala	Ile	Val	Lys	Asp	Pro	Leu	Phe	Tyr	Leu	Asp		
		595					600					605					
Ala	Gln	Lys	Gly	Arg	Tyr	Val	Pro	Leu	Asp	Gln	Glu	Ala	Tyr	Ser	Arg		
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Ile Gln Ala Gly Glu Glu Lys Leu
625 630

<210> 35
<211> 632
<212> PRT
<213> Mus musculus

<400> 35
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Val Phe Ile Lys Thr Val Arg Arg Asp Ile Phe Gly Gly Met Val Leu
35 40 45
Leu Lys Val Lys Thr Lys Val Arg Arg Tyr Leu Gln Glu Arg Lys Thr
50 55 60
Val Pro Leu Leu Phe Ala Ser Met Val Gln Arg His Pro Asp Lys Thr
65 70 75 80
Ala Leu Ile Phe Glu Gly Thr Asp Thr His Trp Thr Phe Arg Gln Leu
85 90 95
Asp Glu Tyr Ser Ser Ser Val Ala Asn Phe Leu Gln Ala Arg Gly Leu
100 105 110
Ala Ser Gly Asn Val Val Ala Leu Phe Met Glu Asn Arg Asn Glu Phe
115 120 125
Val Gly Leu Trp Leu Gly Met Ala Lys Leu Gly Val Glu Ala Ala Leu
130 135 140
Ile Asn Thr Asn Leu Arg Arg Asp Ala Leu Arg His Cys Leu Asp Thr
145 150 155 160
Ser Lys Ala Arg Ala Leu Ile Phe Gly Ser Glu Met Ala Ser Ala Ile
165 170 175
Cys Glu Ile His Ala Ser Leu Glu Pro Thr Leu Ser Leu Phe Cys Ser
180 185 190
Gly Ser Trp Glu Pro Ser Thr Val Pro Val Ser Thr Glu His Leu Asp
195 200 205
Pro Leu Leu Glu Asp Ala Pro Lys His Leu Pro Ser His Pro Asp Lys
210 215 220
Gly Phe Thr Asp Lys Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly
225 230 235 240
Leu Pro Lys Ala Ala Ile Val Val His Ser Arg Tyr Tyr Arg Met Ala
245 250 255
Ser Leu Val Tyr Tyr Gly Phe Arg Met Arg Pro Asp Asp Ile Val Tyr
260 265 270
Asp Cys Leu Pro Leu Tyr His Ser Ser Arg Lys His Arg Gly Asp Trp
275 280 285
Gln Cys Leu Leu His Gly Met Thr Val Val Ile Arg Lys Lys Phe Ser
290 295 300
Ala Ser Arg Phe Trp Asp Asp Cys Ile Lys Tyr Asn Cys Thr Val Val
305 310 315 320
Gln Tyr Ile Gly Glu Leu Cys Arg Tyr Leu Leu Asn Gln Pro Pro Arg
325 330 335
Glu Ala Glu Ser Arg His Lys Val Arg Met Ala Leu Gly Asn Gly Leu
340 345 350
Arg Gln Ser Ile Trp Thr Asp Phe Ser Ser Arg Phe His Ile Pro Gln
355 360 365
Val Ala Glu Phe Tyr Gly Ala Thr Glu Cys Asn Cys Ser Leu Gly Asn
370 375 380
Phe Asp Ser Arg Val Gly Ala Cys Gly Phe Asn Ser Arg Ile Leu Ser
385 390 395 400

Phe Val Tyr Pro Ile Arg Leu Val Arg Val Asn Glu Asp Thr Met Glu
 405 410 415
 Leu Ile Arg Gly Pro Asp Gly Val Cys Ile Pro Cys Gln Pro Gly Gln
 420 425 430
 Pro Gly Gln Leu Val Gly Arg Ile Ile Gln Gln Asp Pro Leu Arg Arg
 435 440 445
 Phe Asp Gly Tyr Leu Asn Gln Gly Ala Asn Asn Lys Lys Ile Ala Asn
 450 455 460
 Asp Val Phe Lys Lys Gly Asp Gln Ala Tyr Leu Thr Gly Asp Val Leu
 465 470 475 480
 Val Met Asp Glu Leu Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp
 485 490 495
 Thr Phe Arg Trp Lys Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly
 500 505 510
 Thr Leu Ser Arg Leu Leu His Met Ala Asp Val Ala Val Tyr Gly Val
 515 520 525
 Glu Val Pro Gly Thr Glu Gly Arg Ala Gly Met Ala Ala Val Ala Ser
 530 535 540
 Pro Ile Ser Asn Cys Asp Leu Glu Ser Phe Ala Gln Thr Leu Lys Lys
 545 550 555 560
 Glu Leu Pro Leu Tyr Ala Arg Pro Ile Phe Leu Arg Phe Leu Pro Glu
 565 570 575
 Leu His Lys Thr Gly Thr Phe Lys Phe Gln Lys Thr Glu Leu Arg Lys
 580 585 590
 Glu Gly Phe Asp Pro Ser Val Val Lys Asp Pro Leu Phe Tyr Leu Asp
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 Ala Arg Lys Gly Cys Tyr Val Ala Leu Asp Gln Glu Ala Tyr Thr Arg
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 Ile Gln Ala Gly Glu Glu Lys Leu
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<210> 36
 <211> 2885
 <212> DNA
 <213> Homo sapiens

<400> 36
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 cacaggaacc agctatgaca tgattacgaa tttaatacga ctcactatag ggaatttggc 180
 cctcgaggcc aagaattcgg cagcaggggt gctgagcccc tgcgcgggtt ctgggtgcgta 240
 gagactgtaa atcgctgcgc ttctcagtc tcatcatccc agcttttccc ggctcgaatt 300
 cagcctccaa ctcaagctcg cgggaaagac tacctgagag gagaaaagct tctgtccctg 360
 gaccttcttc tgaggggtgga gtccgaggct ccctgctttc cagccgcccc gtgaccaag 420
 cttaatcttc agcaccactt gggcgacact ttccggtgca aacctacgat tctgtttctc 480
 aggattcttc cccatcccg ctcgccccgg aaaagctgac aagaacttca ggtgtaagcc 540
 ctgagtagtg aggatctgcg gtctccgtgg agagctgtgc ctggaagaga aggacgctgg 600
 tgggggctga gatcagagct gtcttctggt ccagttgccc ccatgcttct gtcattggta 660
 acagttctag gggctggaat ggtcgtctcg cacttcttgc agaaactcct gttcccttac 720
 ttttgggatg acttctggtt cgtgttgaag gtggtgctca ttataattcg gctgaagaag 780
 tatgaaaaga gaggggagct ggtgactgtg ctggataaat tcttgagtca tgccaaaaga 840
 caacctcgga aacctttcat catctatgag ggagacatct acacctatca ggatgtagac 900
 aaaaggagca gcagagtggc ccatgtcttc ctgaaccatt cctctctgaa aaagggggac 960
 acggtggctc tgctgatgag caatgagccg gacttcgttc acgtgtggtt cggcctcgcc 1020
 aagctgggct gcgtgggtggc ctttctcaac accaacattc gctccaactc cctcctgaat 1080
 tgcatccgag cctgtgggccc cagagcccta gtggtgggag cagatttgct tggaacggta 1140
 gaagaaatcc ttccaagcct ctcagaaaat atcagtggtt gggggatgaa agattctgtt 1200
 ccacaagggtg taatttcact caaagaaaaa ctgagcacct cacctgatga gccctgcca 1260
 cgcagccacc atgttgtctc actcctcaag tctacttgctc tttacatttt tacctctgga 1320

acaacaggtc	taccaaaagc	agctgtgatt	agtcagctgc	aggttttaag	gggttctgct	1380
gtcctgtggg	cttttggttg	tactgctcat	gacattgttt	atataaccct	tcctctgtat	1440
catagtccag	cagctatcct	gggaatttct	ggatgtgttg	agttgggtgc	cacttgtgtg	1500
ttaaagaaga	aattttcagc	aagccagttt	tggagtgact	gcaagaagta	tgatgtgact	1560
gtgtttcagt	atattggaga	actttgtcgc	tacctttgca	aacaatctaa	gagagaagga	1620
gaaaaggatc	ataaggtgcg	tttggcaatt	ggaaatggca	tacggagtga	tgtatggaga	1680
gaatttttag	acagatttgg	aaatataaag	gtgtgtgaac	tttatgcagc	taccgaatca	1740
agcatatctt	tcatgaacta	cactgggaga	attggagcaa	ttggggagaac	aaatttgttt	1800
tacaaacttc	tttccacttt	tgacttaata	aagtatgact	ttcagaaaaga	tgaacccatg	1860
agaaatgagc	agggttggtg	tattcatgtg	aaaaaaggag	aacctggact	tctcatttct	1920
cgagtgaatg	caaaaaaatcc	cttctttggc	tatgctgggc	cttataagca	cacaaaagac	1980
aaattgcttt	gtgatgtttt	taagaagggg	gatgtttacc	ttaatactgg	agacttaata	2040
gtccaggatc	aggacaattt	cctttatttt	tgggaccgta	ctggagacac	tttcagatgg	2100
aaaggagaaa	atgtcgcaac	cactgaggtt	gctgatgtta	ttggaatggt	ggatttcata	2160
caggaagcaa	acgtctatgg	tgtggctata	tcaggttatg	aaggaagagc	aggaatggct	2220
tctattattt	taaaaccaaa	tacatcttta	gatttggaaa	aagtttatga	acaagttgta	2280
acatttctac	cagcttatgc	ttgtccacga	tttttaagaa	ttcaggaaaa	aatggaagca	2340
acaggaacat	tcaaaactatt	gaagcatcag	ttggtggaag	atggatttaa	tccactgaaa	2400
atttctgaac	cactttactt	catggataac	ttgaaaaagt	cttatgttct	actgaccagg	2460
gaacttttatg	atcaaataat	gttaggggaa	ataaaacttt	aagattttta	tatctagaac	2520
tttcatatgc	tttcttagga	agagtggagag	gggggtatat	gattctttat	gaaatgggga	2580
aaggggagcta	acattaatta	tgcatgtact	atatttcctt	aatatgagag	ataatttttt	2640
aattgcataa	gaattttaat	ttcttttaat	tgatataaac	attagttgat	tattcttttt	2700
atctatttgg	agattcagtg	cataactaag	tattttcctt	aatactaaag	attttaaata	2760
ataaatagtg	gctagcgggt	tggacaatca	ctaaaaatgt	acttttcta	aagtaaaatt	2820
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gccgc						2885

<210> 37
 <211> 619
 <212> PRT
 <213> Homo sapiens

<400> 37

Met	Leu	Leu	Ser	Trp	Leu	Thr	Val	Leu	Gly	Ala	Gly	Met	Val	Val	Leu
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His	Phe	Leu	Gln	Lys	Leu	Leu	Phe	Pro	Tyr	Phe	Trp	Asp	Asp	Phe	Trp
			20					25					30		
Phe	Val	Leu	Lys	Val	Val	Leu	Ile	Ile	Ile	Arg	Leu	Lys	Lys	Tyr	Glu
			35				40					45			
Lys	Arg	Gly	Glu	Leu	Val	Thr	Val	Leu	Asp	Lys	Phe	Leu	Ser	His	Ala
			50			55					60				
Lys	Arg	Gln	Pro	Arg	Lys	Pro	Phe	Ile	Ile	Tyr	Glu	Gly	Asp	Ile	Tyr
65					70					75				80	
Thr	Tyr	Gln	Asp	Val	Asp	Lys	Arg	Ser	Ser	Arg	Val	Ala	His	Val	Phe
			85					90						95	
Leu	Asn	His	Ser	Ser	Leu	Lys	Lys	Gly	Asp	Thr	Val	Ala	Leu	Leu	Met
			100					105					110		
Ser	Asn	Glu	Pro	Asp	Phe	Val	His	Val	Trp	Phe	Gly	Leu	Ala	Lys	Leu
			115				120					125			
Gly	Cys	Val	Val	Ala	Phe	Leu	Asn	Thr	Asn	Ile	Arg	Ser	Asn	Ser	Leu
			130				135				140				
Leu	Asn	Cys	Ile	Arg	Ala	Cys	Gly	Pro	Arg	Ala	Leu	Val	Val	Gly	Ala
145					150					155					160
Asp	Leu	Leu	Gly	Thr	Val	Glu	Glu	Ile	Leu	Pro	Ser	Leu	Ser	Glu	Asn
			165					170						175	
Ile	Ser	Val	Trp	Gly	Met	Lys	Asp	Ser	Val	Pro	Gln	Gly	Val	Ile	Ser
			180					185					190		

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<210> 38
<211> 646
<212> PRT
<213> Homo sapiens
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<400> 38

Met	Arg	Ala	Pro	Gly	Ala	Gly	Ala	Ala	Ser	Val	Val	Ser	Leu	Ala	Leu	1	5	10	15
Leu	Trp	Leu	Leu	Gly	Leu	Pro	Trp	Thr	Trp	Ser	Ala	Ala	Ala	Ala	Leu	20	25	30	
Gly	Val	Tyr	Val	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Leu	Arg	Ile	Val	Cys	35	40	45	
Lys	Thr	Ala	Arg	Arg	Asp	Leu	Phe	Gly	Leu	Ser	Val	Leu	Ile	Arg	Val	50	55	60	
Arg	Leu	Glu	Leu	Arg	Arg	His	Gln	Arg	Ala	Gly	His	Thr	Ile	Pro	Arg	65	70	75	80
Ile	Phe	Gln	Ala	Val	Val	Gln	Arg	Gln	Pro	Glu	Arg	Leu	Ala	Leu	Val	85	90	95	
Asp	Ala	Gly	Thr	Gly	Glu	Cys	Trp	Thr	Phe	Ala	Gln	Leu	Asp	Ala	Tyr	100	105	110	
Ser	Asn	Ala	Val	Ala	Asn	Leu	Phe	Arg	Gln	Leu	Gly	Phe	Ala	Pro	Gly	115	120	125	
Asp	Val	Val	Ala	Ile	Phe	Leu	Glu	Gly	Arg	Pro	Glu	Phe	Val	Gly	Leu	130	135	140	
Trp	Leu	Gly	Leu	Ala	Lys	Ala	Gly	Met	Glu	Ala	Ala	Leu	Leu	Asn	Val	145	150	155	160
Asn	Leu	Arg	Arg	Glu	Pro	Leu	Ala	Phe	Cys	Leu	Gly	Thr	Ser	Gly	Ala	165	170	175	
Lys	Ala	Leu	Ile	Phe	Gly	Gly	Glu	Met	Val	Ala	Ala	Val	Ala	Glu	Val	180	185	190	
Ser	Gly	His	Leu	Gly	Lys	Ser	Leu	Ile	Lys	Phe	Cys	Ser	Gly	Asp	Leu	195	200	205	
Gly	Pro	Glu	Gly	Ile	Leu	Pro	Asp	Thr	His	Leu	Leu	Asp	Pro	Leu	Leu	210	215	220	
Lys	Glu	Ala	Ser	Thr	Ala	Pro	Leu	Ala	Gln	Ile	Pro	Ser	Lys	Gly	Met	225	230	235	240
Asp	Asp	Arg	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	245	250	255	
Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ala	Phe	260	265	270	
Gly	His	His	Ala	Tyr	Arg	Met	Gln	Ala	Ala	Asp	Val	Leu	Tyr	Asp	Cys	275	280	285	
Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Ile	Gly	Val	Gly	Gln	Cys	290	295	300	
Leu	Ile	Tyr	Gly	Leu	Thr	Val	Val	Leu	Arg	Lys	Lys	Phe	Ser	Ala	Ser	305	310	315	320
Arg	Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr	325	330	335	
Ile	Gly	Glu	Ile	Cys	Arg	Tyr	Leu	Leu	Lys	Gln	Pro	Val	Arg	Glu	Ala	340	345	350	
Glu	Arg	Arg	His	Arg	Val	Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro	355	360	365	
Ala	Ile	Trp	Glu	Glu	Phe	Thr	Glu	Arg	Phe	Gly	Val	Arg	Gln	Ile	Gly	370	375	380	
Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Ile	Ala	Asn	Met	Asp	385	390	395	400
Gly	Lys	Val	Gly	Ser	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Pro	His	Val	405	410	415	
Tyr	Pro	Ile	Arg	Leu	Val	Lys	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Leu	420	425	430	
Arg	Asp	Ala	Gln	Gly	Leu	Cys	Ile	Pro	Cys	Gln	Ala	Gly	Glu	Pro	Gly	435	440	445	
Leu	Leu	Val	Gly	Gln	Ile	Asn	Gln	Gln	Asp	Pro	Leu	Arg	Arg	Phe	Asp	450	455	460	

[illegible]

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<210> 39
<211> 632
<212> PRT
<213> Homo sapiens
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	<400> 39															
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Ser	Leu	Leu	Phe 20	Leu	Tyr	Leu	Gly	Ser 25	Gly	Gly	Trp	Arg	Phe 30	Ile	Arg	
Val	Phe	Ile	Lys 35	Thr	Ile	Arg	Arg 40	Asp	Ile	Phe	Gly	Gly 45	Leu	Val	Leu	
Leu	Lys 50	Val	Lys	Ala	Lys	Val 55	Arg	Gln	Cys	Leu	Gln 60	Glu	Arg	Arg	Thr	
Val 65	Pro	Ile	Leu	Phe 70	Ala	Ser	Thr	Val	Arg	Arg 75	His	Pro	Asp	Lys 80	Thr	
Ala	Leu	Ile	Phe	Glu 85	Gly	Thr	Asp	Thr 90	His	Trp	Thr	Phe	Arg	Gln 95	Leu	
Asp	Glu	Tyr	Ser 100	Ser	Ser	Val	Ala	Asn 105	Phe	Leu	Gln	Ala	Arg	Gly 110	Leu	
Ala	Ser	Gly	Asp 115	Val	Ala	Ala	Ile 120	Phe	Met	Glu	Asn	Arg	Asn	Glu 125	Phe	
Val	Gly 130	Leu	Trp	Leu	Gly	Met 135	Ala	Lys	Leu	Gly	Val 140	Glu	Ala	Ala	Leu	
Ile 145	Asn	Thr	Asn	Leu	Arg	Arg 150	Asp	Ala	Leu	Leu	His 155	Cys	Leu	Thr	Thr 160	
Ser	Arg	Ala	Arg	Ala 165	Leu	Val	Phe	Gly	Ser 170	Glu	Met	Ala	Ser	Ala 175	Ile	
Cys	Glu	Val	His 180	Ala	Ser	Leu	Asp	Pro 185	Ser	Leu	Ser	Leu	Phe 190	Cys	Ser	
Gly	Ser	Trp	Glu 195	Pro	Gly	Ala	Val 200	Pro	Pro	Ser	Thr	Glu	His 205	Leu	Asp	
Pro	Leu 210	Lys	Asp	Ala	Pro 215	Lys	His	Leu	Pro	Ser	Ser 220	Cys	Pro	Asp	Lys	

Gly	Phe	Thr	Asp	Lys	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly
225					230					235					240
Leu	Pro	Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala
			245						250						255
Ala	Leu	Val	Tyr	Tyr	Gly	Phe	Arg	Met	Arg	Pro	Asn	Asp	Ile	Val	Tyr
			260					265					270		
Asp	Cys	Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Val	Gly	Ile	Gly
		275					280					285			
Gln	Cys	Leu	Leu	His	Gly	Met	Thr	Val	Val	Ile	Arg	Lys	Lys	Phe	Ser
	290					295					300				
Ala	Ser	Arg	Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Ile	Val
305					310					315					320
Gln	Tyr	Ile	Gly	Glu	Leu	Cys	Arg	Tyr	Leu	Leu	Asn	Gln	Pro	Pro	Arg
				325					330					335	
Glu	Ala	Glu	Asn	Gln	His	Gln	Val	Arg	Met	Ala	Leu	Gly	Asn	Gly	Leu
			340					345					350		
Arg	Gln	Ser	Ile	Trp	Thr	Asn	Phe	Ser	Ser	Arg	Phe	His	Ile	Pro	Gln
	355						360					365			
Val	Ala	Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu	Gly	Asn
	370					375					380				
Phe	Asp	Ser	Gln	Val	Gly	Ala	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Ser
385					390					395					400
Phe	Val	Tyr	Pro	Ile	Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr	Met	Glu
				405					410					415	
Leu	Ile	Arg	Gly	Pro	Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro	Gly	Glu
			420					425					430		
Pro	Gly	Gln	Leu	Val	Gly	Arg	Ile	Gln	Lys	Asp	Pro	Leu	Arg	Arg	
	435						440					445			
Phe	Asp	Gly	Tyr	Leu	Asn	Gln	Gly	Ala	Asn	Asn	Lys	Lys	Ile	Ala	Lys
	450					455					460				
Asp	Val	Phe	Lys	Lys	Gly	Asp	Gln	Ala	Tyr	Leu	Thr	Gly	Asp	Val	Leu
465					470					475					480
Val	Met	Asp	Glu	Leu	Gly	Tyr	Leu	Tyr	Phe	Arg	Asp	Arg	Thr	Gly	Asp
				485					490					495	
Thr	Phe	Arg	Trp	Lys	Gly	Glu	Asn	Val	Ser	Thr	Thr	Glu	Val	Glu	Gly
			500					505					510		
Thr	Leu	Ser	Arg	Leu	Leu	Asp	Met	Ala	Asp	Val	Ala	Val	Tyr	Gly	Val
			515				520					525			
Glu	Val	Pro	Gly	Thr	Glu	Gly	Arg	Ala	Gly	Met	Ala	Ala	Val	Ala	Ser
	530					535					540				
Pro	Thr	Gly	Asn	Cys	Asp	Leu	Glu	Arg	Phe	Ala	Gln	Val	Leu	Glu	Lys
545					550					555					560
Glu	Leu	Pro	Leu	Tyr	Ala	Arg	Pro	Ile	Phe	Leu	Arg	Leu	Leu	Pro	Glu
				565					570					575	
Leu	His	Lys	Thr	Gly	Thr	Tyr	Lys	Phe	Gln	Lys	Thr	Glu	Leu	Arg	Lys
			580					585					590		
Glu	Gly	Phe	Asp	Pro	Ala	Ile	Val	Lys	Asp	Pro	Leu	Phe	Tyr	Leu	Asp
			595				600					605			
Ala	Gln	Lys	Gly	Arg	Tyr	Val	Pro	Leu	Asp	Gln	Glu	Ala	Tyr	Ser	Arg
	610					615					620				
Ile	Gln	Ala	Gly	Glu	Glu	Lys	Leu								
625					630										

<210> 40

<211> 619

<212> PRT

<213> Homo sapiens

<400> 40

Met	Leu	Leu	Ser	Trp	Leu	Thr	Val	Leu	Gly	Ala	Gly	Met	Val	Val	Leu
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His	Phe	Leu	Gln	Lys	Leu	Leu	Phe	Pro	Tyr	Phe	Trp	Asp	Asp	Phe	Trp
			20					25					30		
Phe	Val	Leu	Lys	Val	Val	Leu	Ile	Ile	Ile	Arg	Leu	Lys	Lys	Tyr	Glu
		35					40					45			
Lys	Arg	Gly	Glu	Leu	Val	Thr	Val	Leu	Asp	Lys	Phe	Leu	Ser	His	Ala
	50					55					60				
Lys	Arg	Gln	Pro	Arg	Lys	Pro	Phe	Ile	Ile	Tyr	Glu	Gly	Asp	Ile	Tyr
65					70					75				80	
Thr	Tyr	Gln	Asp	Val	Asp	Lys	Arg	Ser	Ser	Arg	Val	Ala	His	Val	Phe
			85						90					95	
Leu	Asn	His	Ser	Ser	Leu	Lys	Lys	Gly	Asp	Thr	Val	Ala	Leu	Leu	Met
			100					105					110		
Ser	Asn	Glu	Pro	Asp	Phe	Val	His	Val	Trp	Phe	Gly	Leu	Ala	Lys	Leu
	115						120					125			
Gly	Cys	Val	Val	Ala	Phe	Leu	Asn	Thr	Asn	Ile	Arg	Ser	Asn	Ser	Leu
	130					135					140				
Leu	Asn	Cys	Ile	Arg	Ala	Cys	Gly	Pro	Arg	Ala	Leu	Val	Val	Gly	Ala
145					150					155					160
Asp	Leu	Leu	Gly	Thr	Val	Glu	Glu	Ile	Leu	Pro	Ser	Leu	Ser	Glu	Asn
				165					170					175	
Ile	Ser	Val	Trp	Gly	Met	Lys	Asp	Ser	Val	Pro	Gln	Gly	Val	Ile	Ser
		180						185					190		
Leu	Lys	Glu	Lys	Leu	Ser	Thr	Ser	Pro	Asp	Glu	Pro	Val	Pro	Arg	Ser
	195						200					205			
His	His	Val	Val	Ser	Leu	Leu	Lys	Ser	Thr	Cys	Leu	Tyr	Ile	Phe	Thr
	210					215					220				
Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	Ala	Ala	Val	Ile	Ser	Gln	Leu	Gln
225					230					235					240
Val	Leu	Arg	Gly	Ser	Ala	Val	Leu	Trp	Ala	Phe	Gly	Cys	Thr	Ala	His
				245					250					255	
Asp	Ile	Val	Tyr	Ile	Thr	Leu	Pro	Leu	Tyr	His	Ser	Ser	Ala	Ala	Ile
		260						265					270		
Leu	Gly	Ile	Ser	Gly	Cys	Val	Glu	Leu	Gly	Ala	Thr	Cys	Val	Leu	Lys
	275						280					285			
Lys	Lys	Phe	Ser	Ala	Ser	Gln	Phe	Trp	Ser	Asp	Cys	Lys	Lys	Tyr	Asp
	290					295					300				
Val	Thr	Val	Phe	Gln	Tyr	Ile	Gly	Glu	Leu	Cys	Arg	Tyr	Leu	Cys	Lys
305					310					315					320
Gln	Ser	Lys	Arg	Glu	Gly	Glu	Lys	Asp	His	Lys	Val	Arg	Leu	Ala	Ile
				325					330					335	
Gly	Asn	Gly	Ile	Arg	Ser	Asp	Val	Trp	Arg	Glu	Phe	Leu	Asp	Arg	Phe
		340						345					350		
Gly	Asn	Ile	Lys	Val	Cys	Glu	Leu	Tyr	Ala	Ala	Thr	Glu	Ser	Ser	Ile
	355						360					365			
Ser	Phe	Met	Asn	Tyr	Thr	Gly	Arg	Ile	Gly	Ala	Ile	Gly	Arg	Thr	Asn
	370					375					380				
Leu	Phe	Tyr	Lys	Leu	Leu	Ser	Thr	Phe	Asp	Leu	Ile	Lys	Tyr	Asp	Phe
385					390					395					400
Gln	Lys	Asp	Glu	Pro	Met	Arg	Asn	Glu	Gln	Gly	Trp	Cys	Ile	His	Val
				405					410					415	
Lys	Lys	Gly	Glu	Pro	Gly	Leu	Leu	Ile	Ser	Arg	Val	Asn	Ala	Lys	Asn
			420					425					430		
Pro	Phe	Phe	Gly	Tyr	Ala	Gly	Pro	Tyr	Lys	His	Thr	Lys	Asp	Lys	Leu
	435						440					445			
Leu	Cys	Asp	Val	Phe	Lys	Lys	Gly	Asp	Val	Tyr	Leu	Asn	Thr	Gly	Asp
	450					455					460				

Leu Ile Val Gln Asp Gln Asp Asn Phe Leu Tyr Phe Trp Asp Arg Thr
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 Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala Thr Thr Glu Val
 485 490 495
 Ala Asp Val Ile Gly Met Leu Asp Phe Ile Gln Glu Ala Asn Val Tyr
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 Gly Val Ala Ile Ser Gly Tyr Glu Gly Arg Ala Gly Met Ala Ser Ile
 515 520 525
 Ile Leu Lys Pro Asn Thr Ser Leu Asp Leu Glu Lys Val Tyr Glu Gln
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 Val Val Thr Phe Leu Pro Ala Tyr Ala Cys Pro Arg Phe Leu Arg Ile
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 Gln Glu Lys Met Glu Ala Thr Gly Thr Phe Lys Leu Leu Lys His Gln
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 <213> Homo sapiens

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 Ile Arg Arg Asp Ile Phe Gly Gly Leu Val Leu Leu Lys Val Lys Ala
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 Lys Val Arg Gln Cys Leu Gln Glu Arg Arg Thr Val Pro Ile Leu Phe
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 Ala Ser Thr Val Arg Arg His Pro Asp Lys Thr Ala Leu Ile Phe Glu
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 Gly Thr Asp Thr His Trp Thr Phe Arg Gln Leu Asp Glu Tyr Ser Ser
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 Ser Val Ala Asn Phe Leu Gln Ala Arg Gly Leu Ala Ser Gly Asp Val
 115 120 125
 Ala Ala Ile Phe Met Glu Asn Arg Asn Glu Phe Val Gly Leu Trp Leu
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 Gly Met Ala Lys Leu Gly Val Glu Ala Ala Leu Ile Asn Thr Asn Leu
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 Arg Arg Asp Ala Leu Leu His Cys Leu Thr Thr Ser Arg Ala Arg Ala
 165 170 175
 Leu Val Phe Gly Ser Glu Met Ala Ser Ala Ile Cys Glu Val His Ala
 180 185 190
 Ser Leu Asp Pro Ser Leu Ser Leu Phe Cys Ser Gly Ser Trp Glu Pro
 195 200 205
 Gly Ala Val Pro Pro Ser Thr Glu His Leu Asp Pro Leu Leu Lys Asp
 210 215 220
 Ala Pro Lys His Leu Pro Ser Cys Pro Asp Lys Gly Phe Thr Asp Lys
 225 230 235 240
 Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly Leu Pro Lys Ala Ala
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Ile Val Val His Ser Arg Tyr Tyr Arg Met Ala Ala Leu Val Tyr Tyr
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Tyr His Ser Ala Gly Asn Ile Val Gly Ile Gly Gln Cys Leu Leu His
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Gly Met Thr Val Val Ile Arg Lys Lys Phe Ser Ala Ser Arg Phe Trp
305      310      315      320
Asp Asp Cys Ile Lys Tyr Asn Cys Thr Ile Val Gln Tyr Ile Gly Glu
      325      330      335
Leu Cys Arg Tyr Leu Leu Asn Gln Pro Arg Glu Ala Glu Asn Gln
      340      345      350
His Gln Val Arg Met Ala Leu Gly Asn Gly Leu Arg Gln Ser Ile Trp
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Thr Asn Phe Ser Ser Arg Phe His Ile Pro Gln Val Ala Glu Phe Tyr
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Gly Ala Thr Glu Cys Asn Cys Ser Leu Gly Asn Phe Asp Ser Gln Val
385      390      395      400
Gly Ala Cys Gly Phe Asn Ser Arg Ile Leu Ser Phe Val Tyr Pro Ile
      405      410      415
Arg Leu Val Arg Val Asn Glu Asp Thr Met Glu Leu Ile Arg Gly Pro
      420      425      430
Asp Gly Val Cys Ile Pro Cys Gln Pro Gly Glu Pro Gly Gln Leu Val
      435      440      445
Gly Arg Ile Ile Gln Lys Asp Pro Leu Arg Arg Phe Asp Gly Tyr Leu
      450      455      460
Asn Gln Gly Ala Asn Asn Lys Lys Ile Ala Lys Asp Val Phe Lys Lys
465      470      475      480
Gly Asp Gln Ala Tyr Leu Thr Gly Asp Val Leu Val Met Asp Glu Leu
      485      490      495
Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp Thr Phe Arg Trp Lys
      500      505      510
Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser Arg Leu
      515      520      525
Leu Asp Met Ala Asp Val Ala Val Tyr Gly Val Glu Val Pro Gly Thr
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Glu Gly Arg Ala Gly Met Ala Ala Val Ala Ser Pro Thr Gly Asn Cys
545      550      555      560
Asp Leu Glu Arg Phe Ala Gln Val Leu Glu Lys Glu Leu Pro Leu Tyr
      565      570      575
Ala Arg Pro Ile Phe Leu Arg Leu Leu Pro Glu Leu His Lys Thr Gly
      580      585      590
Thr Tyr Lys Phe Gln Lys Thr Glu Leu Arg Lys Glu Gly Phe Asp Pro
      595      600      605
Ala Ile Val Lys Asp Pro Leu Phe Tyr Leu Asp Ala Gln Lys Gly Arg
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Tyr Val Pro Leu Asp Gln Glu Ala Tyr Ser Arg Ile Gln Ala Gly Glu
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Glu Lys Leu

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<210> 42
<211> 643
<212> PRT
<213> Mus musculus

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			20					25						30	
Tyr	Leu	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Ile	Arg	Val	Phe	Ile	Lys	Thr
		35					40					45			
Val	Arg	Arg	Asp	Ile	Phe	Gly	Gly	Met	Val	Leu	Leu	Lys	Val	Lys	Thr
	50					55					60				
Lys	Val	Arg	Arg	Tyr	Leu	Gln	Glu	Arg	Lys	Thr	Val	Pro	Leu	Leu	Phe
65					70					75					80
Ala	Ser	Met	Val	Gln	Arg	His	Pro	Asp	Lys	Thr	Ala	Leu	Ile	Phe	Glu
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Gly	Thr	Asp	Thr	His	Trp	Thr	Phe	Arg	Gln	Leu	Asp	Glu	Tyr	Ser	Ser
			100					105					110		
Ser	Val	Ala	Asn	Phe	Leu	Gln	Ala	Arg	Gly	Leu	Ala	Ser	Gly	Asn	Val
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Val	Ala	Leu	Phe	Met	Glu	Asn	Arg	Asn	Glu	Phe	Val	Gly	Leu	Trp	Xaa
	130					135					140				
Gly	Met	Ala	Lys	Leu	Gly	Val	Glu	Ala	Ala	Leu	Ile	Asn	Thr	Asn	Leu
145					150					155					160
Arg	Arg	Asp	Ala	Leu	Arg	His	Cys	Leu	Asp	Thr	Ser	Lys	Ala	Arg	Ala
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Leu	Ile	Phe	Gly	Ser	Glu	Met	Ala	Ser	Ala	Ile	Cys	Glu	Ile	His	Ala
			180						185				190		
Ser	Leu	Gly	Pro	Thr	Leu	Ser	Leu	Phe	Cys	Ser	Gly	Ser	Trp	Glu	Pro
		195					200					205			
Ser	Thr	Val	Pro	Val	Ser	Thr	Glu	His	Leu	Asp	Pro	Leu	Leu	Glu	Asp
	210					215					220				
Ala	Pro	Lys	His	Leu	Pro	Ser	His	Pro	Asp	Lys	Gly	Phe	Thr	Asp	Lys
225					230					235					240
Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	Ala	Ala
				245						250				255	
Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ser	Leu	Val	Tyr	Tyr
			260					265					270		
Gly	Phe	Arg	Met	Arg	Pro	Asp	Asp	Ile	Val	Tyr	Asp	Cys	Leu	Pro	Leu
		275					280					285			
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	290					295					300				
Gly	Met	Thr	Val	Val	Ile	Arg	Lys	Lys	Phe	Ser	Ala	Ser	Arg	Phe	Trp
305					310					315					320
Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Ile	Val	Gln	Tyr	Ile	Gly	Glu
				325					330					335	
Leu	Cys	Arg	Tyr	Leu	Leu	Asn	Gln	Pro	Pro	Arg	Glu	Ala	Glu	Ser	Arg
				340				345					350		
His	Lys	Val	Arg	Met	Ala	Leu	Gly	Asn	Gly	Leu	Arg	Gln	Ser	Ile	Trp
		355					360					365			
Thr	Asp	Phe	Ser	Ser	Arg	Phe	His	Ile	Pro	Gln	Val	Ala	Glu	Phe	Tyr
	370					375					380				
Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu	Gly	Asn	Phe	Asp	Ser	Arg	Val
385					390					395					400
Gly	Ala	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Ser	Phe	Val	Tyr	Pro	Ile
				405					410					415	
Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Ile	Arg	Gly	Pro
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Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro	Gly	Gln	Pro	Gly	Gln	Leu	Val
		435					440					445			

Gly Arg Ile Ile Gln Lys Asp Pro Leu Arg Arg Phe Asp Gly Tyr Leu
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 Gly Asp Gln Ala Tyr Leu Thr Gly Asp Val Leu Val Met Asp Glu Leu
 485 490 495
 Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp Thr Phe Arg Trp Lys
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 Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser Arg Leu
 515 520 525
 Leu His Met Ala Asp Val Ala Val Tyr Gly Val Glu Val Pro Gly Thr
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 Glu Gly Arg Ala Gly Met Ala Ala Val Ala Ser Pro Ile Ser Asn Cys
 545 550 555 560

 Asp Leu Glu Ser Phe Ala Gln Thr Leu Lys Lys Glu Leu Pro Leu Tyr
 565 570 575
 Ala Arg Pro Ile Phe Leu Arg Phe Leu Pro Glu Leu His Lys Thr Gly
 580 585 590
 Thr Phe Lys Phe Gln Lys Thr Glu Leu Arg Lys Glu Gly Phe Asp Pro
 595 600 605
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 Glu Lys Leu

<210> 43
 <211> 646
 <212> PRT
 <213> Homo sapiens

<400> 43
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 35 40 45
 Lys Thr Ala Arg Arg Asp Leu Phe Gly Leu Ser Val Leu Ile Arg Val
 50 55 60
 Arg Leu Glu Leu Arg Arg His Gln Arg Ala Gly His Thr Ile Pro Arg
 65 70 75 80
 Ile Phe Gln Ala Val Val Gln Arg Gln Pro Glu Arg Leu Ala Leu Val
 85 90 95
 Asp Ala Gly Thr Gly Glu Cys Trp Thr Phe Ala Gln Leu Asp Ala Tyr
 100 105 110
 Ser Asn Ala Val Ala Asn Leu Phe Arg Gln Leu Gly Phe Ala Pro Gly
 115 120 125
 Asp Val Val Ala Ile Phe Leu Glu Gly Arg Pro Glu Phe Val Gly Leu
 130 135 140
 Trp Leu Gly Leu Ala Lys Ala Gly Met Glu Ala Ala Leu Leu Asn Val
 145 150 155 160
 Asn Leu Arg Arg Glu Pro Leu Ala Phe Cys Leu Gly Thr Ser Gly Ala
 165 170 175
 Lys Ala Leu Ile Phe Gly Gly Glu Met Val Ala Ala Val Ala Glu Val
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Ser	Gly	His	Leu	Gly	Lys	Ser	Leu	Ile	Lys	Phe	Cys	Ser	Gly	Asp	Leu
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	210					215					220				
Lys	Glu	Ala	Ser	Thr	Ala	Pro	Leu	Ala	Gln	Ile	Pro	Ser	Lys	Gly	Met
225					230					235					240
Asp	Asp	Arg	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro
				245					250					255	
Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ala	Phe
			260					265					270		
Gly	His	His	Ala	Tyr	Arg	Met	Gln	Ala	Ala	Asp	Val	Leu	Tyr	Asp	Cys
		275					280					285			
Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Ile	Gly	Val	Gly	Gln	Cys
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Leu	Ile	Tyr	Gly	Leu	Thr	Val	Val	Leu	Arg	Lys	Lys	Phe	Ser	Ala	Ser
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Arg	Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr
				325					330					335	
Ile	Gly	Glu	Ile	Cys	Arg	Tyr	Leu	Leu	Lys	Gln	Pro	Val	Arg	Glu	Ala
			340					345					350		
Glu	Arg	Arg	His	Arg	Val	Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro
		355					360					365			
Ala	Ile	Trp	Glu	Glu	Phe	Thr	Glu	Arg	Phe	Gly	Val	Arg	Gln	Ile	Gly
	370					375					380				
Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Ile	Ala	Asn	Met	Asp
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Gly	Lys	Val	Gly	Ser	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Pro	His	Val
				405					410					415	
Tyr	Pro	Ile	Arg	Leu	Val	Lys	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Leu
			420					425					430		
Arg	Asp	Ala	Gln	Gly	Leu	Cys	Ile	Pro	Cys	Gln	Ala	Gly	Glu	Pro	Gly
		435					440					445			
Leu	Leu	Val	Gly	Gln	Ile	Asn	Gln	Gln	Asp	Pro	Leu	Arg	Arg	Phe	Asp
	450					455					460				
Gly	Tyr	Val	Ser	Glu	Ser	Ala	Thr	Ser	Lys	Lys	Ile	Ala	His	Ser	Val
465					470					475					480
Phe	Ser	Lys	Gly	Asp	Ser	Ala	Tyr	Leu	Ser	Gly	Asp	Val	Leu	Val	Met
				485					490					495	
Asp	Glu	Leu	Gly	Tyr	Met	Tyr	Phe	Arg	Asp	Arg	Ser	Gly	Asp	Thr	Phe
			500					505					510		
Arg	Trp	Arg	Gly	Glu	Asn	Val	Ser	Thr	Thr	Glu	Val	Glu	Gly	Val	Leu
		515					520					525			
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 <211> 2710
 <212> DNA
 <213> Mus musculus

<400> 44

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 <211> 643
 <212> PRT
 <213> Mus musculus

<400> 45

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Tyr	Leu	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Ile	Arg	Val	Phe	Ile	Lys	Thr	35	40	45	
Val	Arg	Arg	Asp	Ile	Phe	Gly	Gly	Met	Val	Leu	Leu	Lys	Val	Lys	Thr	50	55	60	
Lys	Val	Arg	Arg	Tyr	Leu	Gln	Glu	Arg	Lys	Thr	Val	Pro	Leu	Leu	Phe	65	70	75	80
Ala	Ser	Met	Val	Gln	Arg	His	Pro	Asp	Lys	Thr	Ala	Leu	Ile	Phe	Glu	85	90	95	
Gly	Thr	Asp	Thr	His	Trp	Thr	Phe	Arg	Gln	Leu	Asp	Glu	Tyr	Ser	Ser	100	105	110	
Ser	Val	Ala	Asn	Phe	Leu	Gln	Ala	Arg	Gly	Leu	Ala	Ser	Gly	Asn	Val	115	120	125	
Val	Ala	Leu	Phe	Met	Glu	Asn	Arg	Asn	Glu	Phe	Val	Gly	Leu	Trp	Leu	130	135	140	
Gly	Met	Ala	Lys	Leu	Gly	Val	Glu	Ala	Ala	Leu	Ile	Asn	Thr	Asn	Leu	145	150	155	160
Arg	Arg	Asp	Ala	Leu	Arg	His	Cys	Leu	Asp	Thr	Ser	Lys	Ala	Arg	Ala	165	170	175	
Leu	Ile	Phe	Gly	Ser	Glu	Met	Ala	Ser	Ala	Ile	Cys	Glu	Ile	His	Ala	180	185	190	
Ser	Leu	Glu	Pro	Thr	Leu	Ser	Leu	Phe	Cys	Ser	Gly	Ser	Trp	Glu	Pro	195	200	205	
Ser	Thr	Val	Pro	Val	Ser	Thr	Glu	His	Leu	Asp	Pro	Leu	Leu	Glu	Asp	210	215	220	
Ala	Pro	Lys	His	Leu	Pro	Ser	His	Pro	Asp	Lys	Gly	Phe	Thr	Asp	Lys	225	230	235	240
Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	Ala	Ala	245	250	255	
Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ser	Leu	Val	Tyr	Tyr	260	265	270	
Gly	Phe	Arg	Met	Arg	Pro	Asp	Asp	Ile	Val	Tyr	Asp	Cys	Leu	Pro	Leu	275	280	285	
Tyr	His	Ser	Ser	Arg	Lys	His	Arg	Gly	Asp	Trp	Gln	Cys	Leu	Leu	His	290	295	300	
Gly	Met	Thr	Val	Val	Ile	Arg	Lys	Lys	Phe	Ser	Ala	Ser	Arg	Phe	Trp	305	310	315	320
Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr	Ile	Gly	Glu	325	330	335	
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His	Lys	Val	Arg	Met	Ala	Leu	Gly	Asn	Gly	Leu	Arg	Gln	Ser	Ile	Trp	355	360	365	
Thr	Asp	Phe	Ser	Ser	Arg	Phe	His	Ile	Pro	Gln	Val	Ala	Glu	Phe	Tyr	370	375	380	
Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu	Gly	Asn	Phe	Asp	Ser	Arg	Val	385	390	395	400
Gly	Ala	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Ser	Phe	Val	Tyr	Pro	Ile	405	410	415	
Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Ile	Arg	Gly	Pro	420	425	430	
Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro	Gly	Gln	Pro	Gly	Gln	Leu	Val	435	440	445	
Gly	Arg	Ile	Ile	Gln	Gln	Asp	Pro	Leu	Arg	Arg	Phe	Asp	Gly	Tyr	Leu	450	455	460	

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 485 490 495
 Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp Thr Phe Arg Trp Lys
 500 505 510
 Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser Arg Leu
 515 520 525
 Leu His Met Ala Asp Val Ala Val Tyr Gly Val Glu Val Pro Gly Thr
 530 535 540
 Glu Gly Arg Ala Gly Met Ala Ala Val Ala Ser Pro Ile Ser Asn Cys
 545 550 555 560
 Asp Leu Glu Ser Phe Ala Gln Thr Leu Lys Lys Glu Leu Pro Leu Tyr
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 Ala Arg Pro Ile Phe Leu Arg Phe Leu Pro Glu Leu His Lys Thr Gly
 580 585 590
 Thr Phe Lys Phe Gln Lys Thr Glu Leu Arg Lys Glu Gly Phe Asp Pro
 595 600 605
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 <212> DNA
 <213> Homo sapiens

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<210> 47

<211> 646

<212> PRT

<213> Homo sapiens

<400> 47

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			20					25					30		
Gly	Val	Tyr	Val	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Leu	Arg	Ile	Val	Cys
		35				40						45			
Lys	Thr	Ala	Arg	Arg	Asp	Leu	Phe	Gly	Leu	Ser	Val	Leu	Ile	Arg	Val
	50				55						60				
Arg	Leu	Glu	Leu	Arg	Arg	His	Gln	Arg	Ala	Gly	His	Thr	Ile	Pro	Arg
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Ile	Phe	Gln	Ala	Val	Val	Gln	Arg	Gln	Pro	Glu	Arg	Leu	Ala	Leu	Val
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Asp	Ala	Gly	Thr	Gly	Glu	Cys	Trp	Thr	Phe	Ala	Gln	Leu	Asp	Ala	Tyr
		100					105					110			
Ser	Asn	Ala	Val	Ala	Asn	Leu	Phe	Arg	Gln	Leu	Gly	Phe	Ala	Pro	Gly
	115				120						125				
Asp	Val	Val	Ala	Ile	Phe	Leu	Glu	Gly	Arg	Pro	Glu	Phe	Val	Gly	Leu
	130				135						140				

Trp	Leu	Gly	Leu	Ala	Lys	Ala	Gly	Met	Glu	Ala	Ala	Leu	Leu	Asn	Val	145	150	155	160
Asn	Leu	Arg	Arg	Glu	Pro	Leu	Ala	Phe	Cys	Leu	Gly	Thr	Ser	Gly	Ala	165	170	175	
Lys	Ala	Leu	Ile	Phe	Gly	Gly	Glu	Met	Val	Ala	Ala	Val	Ala	Glu	Val	180	185	190	
Ser	Gly	His	Leu	Gly	Lys	Ser	Leu	Ile	Lys	Phe	Cys	Ser	Gly	Asp	Leu	195	200	205	
Gly	Pro	Glu	Gly	Ile	Leu	Pro	Asp	Thr	His	Leu	Leu	Asp	Pro	Leu	Leu	210	215	220	
Lys	Glu	Ala	Ser	Thr	Ala	Pro	Leu	Ala	Gln	Ile	Pro	Ser	Lys	Gly	Met	225	230	235	240
Asp	Asp	Arg	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	245	250	255	
Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ala	Phe	260	265	270	
Gly	His	His	Ala	Tyr	Arg	Met	Gln	Ala	Ala	Asp	Val	Leu	Tyr	Asp	Cys	275	280	285	
Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Ile	Gly	Val	Gly	Gln	Cys	290	295	300	
Leu	Ile	Tyr	Gly	Leu	Thr	Val	Val	Leu	Arg	Lys	Lys	Phe	Ser	Ala	Ser	305	310	315	320
Arg	Phe	Trp	Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr	325	330	335	
Ile	Gly	Glu	Ile	Cys	Arg	Tyr	Leu	Leu	Lys	Gln	Pro	Val	Arg	Glu	Ala	340	345	350	
Glu	Arg	Arg	His	Arg	Val	Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro	355	360	365	
Ala	Ile	Trp	Glu	Glu	Phe	Thr	Glu	Arg	Phe	Gly	Val	Arg	Gln	Ile	Gly	370	375	380	
Glu	Phe	Tyr	Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Ile	Ala	Asn	Met	Asp	385	390	395	400
Gly	Lys	Val	Gly	Ser	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Pro	His	Val	405	410	415	
Tyr	Pro	Ile	Arg	Leu	Val	Lys	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Leu	420	425	430	
Arg	Asp	Ala	Gln	Gly	Leu	Cys	Ile	Pro	Cys	Gln	Ala	Gly	Glu	Pro	Gly	435	440	445	
Leu	Leu	Val	Gly	Gln	Ile	Asn	Gln	Gln	Asp	Pro	Leu	Arg	Arg	Phe	Asp	450	455	460	
Gly	Tyr	Val	Ser	Glu	Ser	Ala	Thr	Ser	Lys	Lys	Ile	Ala	His	Ser	Val	465	470	475	480
Phe	Ser	Lys	Gly	Asp	Ser	Ala	Tyr	Leu	Ser	Gly	Asp	Val	Leu	Val	Met	485	490	495	
Asp	Glu	Leu	Gly	Tyr	Met	Tyr	Phe	Arg	Asp	Arg	Ser	Gly	Asp	Thr	Phe	500	505	510	
Arg	Trp	Arg	Gly	Glu	Asn	Val	Ser	Thr	Thr	Glu	Val	Glu	Gly	Val	Leu	515	520	525	
Ser	Arg	Leu	Leu	Gly	Gln	Thr	Asp	Val	Ala	Val	Tyr	Gly	Val	Ala	Val	530	535	540	
Pro	Gly	Val	Glu	Gly	Lys	Ala	Gly	Met	Ala	Ala	Val	Ala	Asp	Pro	His	545	550	555	560
Ser	Leu	Leu	Asp	Pro	Asn	Ala	Ile	Tyr	Gln	Glu	Leu	Gln	Lys	Val	Leu	565	570	575	
Ala	Pro	Tyr	Ala	Arg	Pro	Ile	Phe	Leu	Arg	Leu	Leu	Pro	Gln	Val	Asp	580	585	590	
Thr	Thr	Gly	Thr	Phe	Lys	Ile	Gln	Lys	Thr	Arg	Leu	Gln	Arg	Glu	Gly	595	600	605	

Phe Asp Pro Arg Gln Thr Ser Asp Arg Leu Phe Phe Leu Asp Leu Lys
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 <211> 2362
 <212> DNA
 <213> Homo sapiens

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<210> 49
 <211> 620
 <212> PRT
 <213> Homo sapiens

<400> 49

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Phe	Leu	Lys	Val	Ala	Ala	Val	Gly	Arg	Arg	Val	Arg	Ser	Tyr	Gly	Gln
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Arg	Arg	Pro	Ala	Arg	Thr	Ile	Leu	Arg	Ala	Phe	Leu	Glu	Lys	Ala	Arg
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Cys	Ala	Met	Ala	Cys	Leu	Asn	Tyr	Asn	Ile	Arg	Ala	Lys	Ser	Leu	Leu
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Ser	Phe	Leu	Asp	Lys	Val	Asp	Glu	Val	Ser	Thr	Glu	Pro	Ile	Pro	Glu
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Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	Ala	Ala	Met	Ile	Thr	His	Gln
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			260					265					270		
Leu	Ile	Gly	Ile	His	Gly	Cys	Ile	Val	Ala	Gly	Ala	Thr	Leu	Ala	Leu
			275				280					285			
Arg	Thr	Lys	Phe	Ser	Ala	Ser	Gln	Phe	Trp	Asp	Asp	Cys	Arg	Lys	Tyr
						295					300				
Asn	Val	Thr	Val	Ile	Gln	Tyr	Ile	Gly	Glu	Leu	Leu	Arg	Tyr	Leu	Cys
305					310					315					320
Asn	Ser	Pro	Gln	Lys	Pro	Asn	Asp	Arg	Asp	His	Lys	Val	Arg	Leu	Ala
				325					330					335	
Leu	Gly	Asn	Gly	Leu	Arg	Gly	Asp	Val	Trp	Arg	Gln	Phe	Val	Lys	Arg
			340				345						350		
Phe	Gly	Asp	Ile	Cys	Ile	Tyr	Glu	Phe	Tyr	Ala	Ala	Thr	Glu	Gly	Asn
			355				360					365			
Ile	Gly	Phe	Met	Asn	Tyr	Ala	Arg	Lys	Val	Gly	Ala	Val	Gly	Arg	Val
			370			375					380				
Asn	Tyr	Leu	Gln	Lys	Lys	Ile	Ile	Thr	Tyr	Asp	Leu	Ile	Lys	Tyr	Asp
385				390						395					400
Val	Glu	Lys	Asp	Glu	Pro	Val	Arg	Asp	Glu	Asn	Gly	Tyr	Cys	Val	Arg
				405					410					415	
Val	Pro	Lys	Gly	Glu	Val	Gly	Leu	Leu	Val	Cys	Lys	Ile	Thr	Gln	Leu
			420				425						430		
Thr	Pro	Phe	Asn	Gly	Tyr	Ala	Gly	Ala	Lys	Ala	Gln	Thr	Glu	Lys	Lys
			435				440					445			
Lys	Leu	Arg	Asp	Val	Phe	Lys	Lys	Gly	Asp	Leu	Tyr	Phe	Asn	Ser	Gly
			450			455					460				

Asp Leu Leu Met Val Asp His Glu Asn Phe Ile Tyr Phe His Asp Arg
 465 470 475 480
 Val Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala Thr Thr Glu
 485 490 495
 Val Ala Asp Thr Val Gly Leu Val Asp Phe Val Gln Glu Val Asn Val
 500 505 510
 Tyr Gly Val His Val Pro Asp His Glu Gly Arg Ile Gly Met Ala Ser
 515 520 525
 Ile Lys Met Lys Glu Asn His Glu Phe Asp Gly Lys Lys Leu Phe Gln
 530 535 540
 His Ile Ala Asp Tyr Leu Pro Ser Tyr Ala Arg Pro Arg Phe Leu Arg
 545 550 555 560
 Ile Gln Asp Thr Ile Glu Ile Thr Gly Thr Phe Lys His Arg Lys Met
 565 570 575
 Thr Leu Val Glu Glu Gly Phe Asn Pro Ala Val Ile Lys Asp Ala Leu
 580 585 590
 Tyr Phe Leu Asp Asp Thr Ala Lys Met Tyr Val Pro Met Thr Glu Asp
 595 600 605
 Ile Tyr Asn Ala Ile Ser Ala Lys Thr Leu Lys Leu
 610 615 620

<210> 50
 <211> 1173
 <212> DNA
 <213> Homo sapiens

<400> 50
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 cataagggtcc ggctggcagt gggcagcggg ctgcgcccag atacctggga gcgtttttgtg 180
 cggcgcttcg ggccccctgca ggtgctggag acatatggac tgacagaggg caacgtggcc 240
 accatcaact acacaggaca gcggggcgct gtggggcgct ctctctggct ttacaagcat 300
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 caggggcaact gtatggccac atctccaggt gagccaggc tgctggtggc cccggttaagc 420
 cagcagtcct cattcctggg ctatgctggc gggccagagc tggcccaggg gaagttgcta 480
 aaggatgtct tccggcctgg ggatgttttc ttcaacactg gggacctgct ggtctgcgat 540
 gaccaagggt ttctccgctt ccatgatcgt actggagaca ccttcagggt gaagggggag 600
 aatgtggcca caaccgaggt ggcagaggtc ttcgaggccc tagattttct tcaggagggtg 660
 aacgtctatg gagtcactgt gccagggcat gaaggcaggg ctggaatggc agccctagtt 720
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 ccaccttatg cccggccccg attcctcagg ctccaggagt ctttggccac cacagagacc 840
 ttcaaacagc agaaagttcg gatggcaaat gagggcttcg accccagcac cctgtctgac 900
 ccactgtacg ttctggacca ggctgtaggt gcctacctgc ccctcacaac tgcccggtag 960
 agcgccctcc tggcaggaaa ccttcgaatc tgagaacttc cacacctgag gcacctgaga 1020
 gaggaactct gtgggggtggg ggccgttgca ggtgtactgg gctgtcaggg atcttttcta 1080
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 gacaaaaaaaa aaaaaaaaaa aaagggcggc cgc 1173

<210> 51
 <211> 330
 <212> PRT
 <213> Homo sapiens

<400> 51
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 Thr Val Phe Gln Tyr Ile Gly Glu Leu Cys Arg Tyr Leu Val Asn Gln
 20 25 30

Pro Pro Ser Lys Ala Glu Arg Gly His Lys Val Arg Leu Ala Val Gly
 35 40 45
 Ser Gly Leu Arg Pro Asp Thr Trp Glu Arg Phe Val Arg Arg Phe Gly
 50 55 60
 Pro Leu Gln Val Leu Glu Thr Tyr Gly Leu Thr Glu Gly Asn Val Ala
 65 70 75 80
 Thr Ile Asn Tyr Thr Gly Gln Arg Gly Ala Val Gly Arg Ala Ser Trp
 85 90 95
 Leu Tyr Lys His Ile Phe Pro Phe Ser Leu Ile Arg Tyr Asp Val Thr
 100 105 110
 Thr Gly Glu Pro Ile Arg Asp Pro Gln Gly His Cys Met Ala Thr Ser
 115 120 125
 Pro Gly Glu Pro Gly Leu Leu Val Ala Pro Val Ser Gln Gln Ser Pro
 130 135 140
 Phe Leu Gly Tyr Ala Gly Gly Pro Glu Leu Ala Gln Gly Lys Leu Leu
 145 150 155 160
 Lys Asp Val Phe Arg Pro Gly Asp Val Phe Phe Asn Thr Gly Asp Leu
 165 170 175
 Leu Val Cys Asp Asp Gln Gly Phe Leu Arg Phe His Asp Arg Thr Gly
 180 185 190
 Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ala Thr Thr Glu Val Ala
 195 200 205
 Glu Val Phe Glu Ala Leu Asp Phe Leu Gln Glu Val Asn Val Tyr Gly
 210 215 220
 Val Thr Val Pro Gly His Glu Gly Arg Ala Gly Met Ala Ala Leu Val
 225 230 235 240
 Leu Arg Pro Pro His Ala Leu Asp Leu Met Gln Leu Tyr Thr His Val
 245 250 255
 Ser Glu Asn Leu Pro Pro Tyr Ala Arg Pro Arg Phe Leu Arg Leu Gln
 260 265 270
 Glu Ser Leu Ala Thr Thr Glu Thr Phe Lys Gln Gln Lys Val Arg Met
 275 280 285
 Ala Asn Glu Gly Phe Asp Pro Ser Thr Leu Ser Asp Pro Leu Tyr Val
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 Ser Ala Leu Leu Ala Gly Asn Leu Arg Ile
 325 330

<210> 52
 <211> 2907
 <212> DNA
 <213> Homo sapiens

<400> 52

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ggctaagtcc	cctcacgtcg	tctacgtctg	tgcaaccggg	ccgcatctgg	acggggcgcc	180
gcgcggcgga	gccgacgccg	ggccacaatg	ctgcttggag	cctctctggt	gggggtgctg	240
ctgtttctcca	agctggtgct	gaaactgccc	tggacccagg	tgggattctc	cctgttgctc	300
ctctacttgg	gatctggcgg	ctggcgcttc	atccgggtct	tcatcaagac	catcaggcgc	360
gatattctttg	gcggcctggt	cctcctgaag	gtgaaggcaa	aggtgcgaca	gtgcctgcag	420
gagcggcgga	cagtgcccat	tttgtttgcc	tctaccgttc	ggcgccaccc	cgacaagacg	480
gccctgatct	tcgagggcac	agatacccac	tggaccttcc	gccagctgga	tgagtactca	540
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ttcatgggga	accgcaatga	gttcgtgggc	ctatggctgg	gcatggccaa	gctcgggtgtg	660
gaggcagccc	tcataaacac	caacctgcgg	cgggatgctc	tgctccactg	cctcaccacc	720
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gccagcctgg	accctcgcct	cagcctcttc	tgccttggtg	cctgggagcc	cgggtgcggtg	840

cctccaagca	cagaacacct	ggaccctctg	ctgaaagatg	ctcccaagca	ccttcccagt	900
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tatggattcc	gcatgcgggc	caacgacatc	gtctatgact	gcctccccct	ctaccactca	1080
gcaggaaaca	tcgtgggaat	cggccagtg	ctgctgcatg	gcatgacggg	ggtgattcgg	1140
aagaagttct	cagcctccc	gttctgggac	gattgtatca	agtacaactg	cacgattgtg	1200
cagtacattg	gtgaactgtg	ccgctacctc	ctgaaccagc	caccgcggga	ggcagaaaac	1260
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aaaaaaaaaa	aaaaaaaaaa	aaaaaaa				2907

<210> 53
 <211> 643
 <212> PRT
 <213> Homo sapiens

<400> 53

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Val	Leu	Lys	Leu	Pro	Trp	Thr	Gln	Val	Gly	Phe	Ser	Leu	Leu	Phe	Leu
			20					25					30		
Tyr	Leu	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Ile	Arg	Val	Phe	Ile	Lys	Thr
		35					40					45			
Ile	Arg	Arg	Asp	Ile	Phe	Gly	Gly	Leu	Val	Leu	Leu	Lys	Val	Lys	Ala
	50					55					60				
Lys	Val	Arg	Gln	Cys	Leu	Gln	Glu	Arg	Arg	Thr	Val	Pro	Ile	Leu	Phe
65					70					75				80	
Ala	Ser	Thr	Val	Arg	Arg	His	Pro	Asp	Lys	Thr	Ala	Leu	Ile	Phe	Glu
			85						90					95	
Gly	Thr	Asp	Thr	His	Trp	Thr	Phe	Arg	Gln	Leu	Asp	Glu	Tyr	Ser	Ser
			100					105						110	
Ser	Val	Ala	Asn	Phe	Leu	Gln	Ala	Arg	Gly	Leu	Ala	Ser	Gly	Asp	Val
	115						120					125			

Ala	Ala	Ile	Phe	Met	Glu	Asn	Arg	Asn	Glu	Phe	Val	Gly	Leu	Trp	Leu
130						135					140				
Gly	Met	Ala	Lys	Leu	Gly	Val	Glu	Ala	Ala	Leu	Ile	Asn	Thr	Asn	Leu
145					150					155					160
Arg	Arg	Asp	Ala	Leu	Leu	His	Cys	Leu	Thr	Thr	Ser	Arg	Ala	Arg	Ala
				165					170					175	
Leu	Val	Phe	Gly	Ser	Glu	Met	Ala	Ser	Ala	Ile	Cys	Glu	Val	His	Ala
			180					185					190		
Ser	Leu	Asp	Pro	Ser	Leu	Ser	Leu	Phe	Cys	Ser	Gly	Ser	Trp	Glu	Pro
		195					200				205				
Gly	Ala	Val	Pro	Pro	Ser	Thr	Glu	His	Leu	Asp	Pro	Leu	Leu	Lys	Asp
210						215				220					
Ala	Pro	Lys	His	Leu	Pro	Ser	Cys	Pro	Asp	Lys	Gly	Phe	Thr	Asp	Lys
225					230				235						240
Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	Lys	Ala	Ala
				245					250					255	
Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Met	Ala	Ala	Leu	Val	Tyr	Tyr
			260					265					270		
Gly	Phe	Arg	Met	Arg	Pro	Asn	Asp	Ile	Val	Tyr	Asp	Cys	Leu	Pro	Leu
		275					280				285				
Tyr	His	Ser	Ala	Gly	Asn	Ile	Val	Gly	Ile	Gly	Gln	Cys	Leu	Leu	His
290					295					300					
Gly	Met	Thr	Val	Val	Ile	Arg	Lys	Lys	Phe	Ser	Ala	Ser	Arg	Phe	Trp
305				310					315						320
Asp	Asp	Cys	Ile	Lys	Tyr	Asn	Cys	Thr	Ile	Val	Gln	Tyr	Ile	Gly	Glu
				325					330					335	
Leu	Cys	Arg	Tyr	Leu	Leu	Asn	Gln	Pro	Pro	Arg	Glu	Ala	Glu	Asn	Gln
			340					345				350			
His	Gln	Val	Arg	Met	Ala	Leu	Gly	Asn	Gly	Leu	Arg	Gln	Ser	Ile	Trp
		355					360				365				
Thr	Asn	Phe	Ser	Ser	Arg	Phe	His	Ile	Pro	Gln	Val	Ala	Glu	Phe	Tyr
370					375					380					
Gly	Ala	Thr	Glu	Cys	Asn	Cys	Ser	Leu	Gly	Asn	Phe	Asp	Ser	Gln	Val
385				390					395						400
Gly	Ala	Cys	Gly	Phe	Asn	Ser	Arg	Ile	Leu	Ser	Phe	Val	Tyr	Pro	Ile
			405					410						415	
Arg	Leu	Val	Arg	Val	Asn	Glu	Asp	Thr	Met	Glu	Leu	Ile	Arg	Gly	Pro
			420				425					430			
Asp	Gly	Val	Cys	Ile	Pro	Cys	Gln	Pro	Gly	Glu	Pro	Gly	Gln	Leu	Val
		435					440					445			
Gly	Arg	Ile	Ile	Gln	Lys	Asp	Pro	Leu	Arg	Arg	Phe	Asp	Gly	Tyr	Leu
450					455					460					
Asn	Gln	Gly	Ala	Asn	Asn	Lys	Lys	Ile	Ala	Lys	Asp	Val	Phe	Lys	Lys
465				470					475						480
Gly	Asp														

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Thr Tyr Lys Phe Gln Lys Thr Glu Leu Arg Lys Glu Gly Phe Asp Pro
      595                      600                      605
Ala Ile Val Lys Asp Pro Leu Phe Tyr Leu Asp Ala Gln Lys Gly Arg
      610                      615                      620
Tyr Val Pro Leu Asp Gln Glu Ala Tyr Ser Arg Ile Gln Ala Gly Glu
      625                      630                      635                      640
Glu Lys Leu

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<210> 54
<211> 1248
<212> DNA
<213> Homo sapiens

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<220>
<221> misc_feature
<222> (1)...(1248)
<223> n = A,T,C or G

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<400> 54
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ggcagagctcc tgcgatactt gtgtaacatt cccagcaaac cagaggaccg gacacatata      180
gtccgcctgg caatgggcaa tggactacgg gctgatgtgt ggggagacct tccagcagcg      240
tttcggtcct atttcggatc tngggaagtc ttacgggctt ccacagaagg gcaacatggg      300
gcttttagtgc aaatattgtt gggggcgctg cggggccctg ggggcaaaga tggagcttgc      360
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gtgagggaca atcagggtt ctgcattcct gtagggctag gggagccggg gctgctgttg      480
accaaggtgg taagccagca acccttcgtg ggctaccgag gccccgaga gctgtcggaa      540
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ctggccatgg accgcgaagg cttcctctac ttccgcgacc gactcgggga caccttccga      660
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gctgctgtgg cattagcccc cgccagactc ttgcaggggg agaagttgta ccagcacgtt      840
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ctgggcctgt gtgaatccca gcctggccat accctcaacc tcagtggggt ggaaatgaca      1200
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<210> 55
<211> 354
<212> PRT
<213> Homo sapiens

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<220>
<221> VARIANT
<222> (1)...(354)
<223> Xaa = Any Amino Acid

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<400> 55
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Gly Val Thr Val Ile Leu Tyr Val Gly Glu Leu Leu Arg Tyr Leu Cys
      35                      40                      45

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Asn Ile Pro Gln Gln Pro Glu Asp Arg Thr His Thr Val Arg Leu Ala
 50 55 60
 Met Gly Asn Gly Leu Arg Ala Asp Val Trp Gly Asp Leu Pro Ala Ala
 65 70 75 80
 Phe Arg Ser Tyr Phe Gly Ser Xaa Glu Val Leu Arg Ala Ser Thr Glu
 85 90 95
 Gly Gln His Gly Ala Leu Val Gln Ile Leu Leu Gly Ala Leu Arg Gly
 100 105 110
 Pro Gly Gly Lys Asp Gly Ala Cys Leu Leu Arg Met Leu Ser Pro Phe
 115 120 125
 Glu Leu Val Gln Phe Asp Met Glu Ala Ala Glu Pro Val Arg Asp Asn
 130 135 140
 Gln Gly Phe Cys Ile Pro Val Gly Leu Gly Glu Pro Gly Leu Leu Leu
 145 150 155 160
 Thr Lys Val Val Ser Gln Gln Pro Phe Val Gly Tyr Arg Gly Pro Arg
 165 170 175
 Glu Leu Ser Glu Arg Lys Leu Val Arg Asn Val Arg Gln Ser Gly Asp
 180 185 190
 Val Tyr Tyr Asn Thr Gly Asp Val Leu Ala Met Asp Arg Glu Gly Phe
 195 200 205
 Leu Tyr Phe Arg Asp Arg Leu Gly Asp Thr Phe Arg Trp Lys Gly Glu
 210 215 220
 Asn Val Ser Thr His Glu Val Glu Gly Val Leu Ser Gln Val Asp Phe
 225 230 235 240
 Leu Gln Gln Val Asn Val Tyr Gly Val Cys Val Pro Gly Cys Glu Gly
 245 250 255
 Lys Val Gly Met Ala Ala Val Ala Leu Ala Pro Gly Gln Thr Phe Asp
 260 265 270
 Gly Glu Lys Leu Tyr Gln His Val Arg Ala Trp Leu Pro Ala Tyr Ala
 275 280 285
 Thr Pro His Phe Ile Arg Ile Gln Asp Ala Met Glu Val Thr Ser Thr
 290 295 300
 Phe Lys Leu Met Lys Thr Arg Leu Val Arg Glu Gly Phe Asn Val Gly
 305 310 315 320
 Ile Val Val Asp Pro Leu Phe Val Leu Asp Asn Arg Ala Gln Ser Phe
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 Arg Leu

<210> 56

<211> 2885

<212> DNA

<213> Homo sapiens

<400> 56

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gagactgtaa	atcgctgcgc	ttctcagtca	tcatcatccc	agcttttccc	ggctcgaatt	300
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aggattcctc	cccattccgc	ttcgccccgg	aaaagctgac	aagaacttca	ggtgtaagcc	540
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 <212> PRT
 <213> Homo sapiens

<400> 57

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			20					25					30		
Phe	Val	Leu	Lys	Val	Val	Leu	Ile	Ile	Arg	Leu	Lys	Lys	Tyr	Glu	
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Lys	Arg	Gly	Glu	Leu	Val	Thr	Val	Leu	Asp	Lys	Phe	Leu	Ser	His	Ala
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Lys	Arg	Gln	Pro	Arg	Lys	Pro	Phe	Ile	Ile	Tyr	Glu	Gly	Asp	Ile	Tyr
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Thr	Tyr	Gln	Asp	Val	Asp	Lys	Arg	Ser	Ser	Arg	Val	Ala	His	Val	Phe
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Asp	Leu	Leu	Gly	Thr	Val	Glu	Glu	Ile	Leu	Pro	Ser	Leu	Ser	Glu	Asn
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Val	Thr	Val	Phe	Gln	Tyr	Ile	Gly	Glu	Leu	Cys	Arg	Tyr	Leu	Cys	Lys
305					310					315					320
Gln	Ser	Lys	Arg	Glu	Gly	Glu	Lys	Asp	His	Lys	Val	Arg	Leu	Ala	Ile
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Val	Val	Thr	Phe	Leu	Pro	Ala	Tyr	Ala	Cys	Pro	Arg	Phe	Leu	Arg	Ile
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Gln	Glu	Lys	Met	Glu	Ala	Thr	Gly	Thr	Phe	Lys	Leu	Leu	Lys	His	Gln
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 Phe Met Asp Asn Leu Lys Lys Ser Tyr Val Leu Leu Thr Arg Glu Leu
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 Tyr Asp Gln Ile Met Leu Gly Glu Ile Lys Leu
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<210> 58
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 <212> DNA
 <213> *Rattus norvegicus*

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<210> 59

<211> 646

<212> PRT

<213> Rattus norvegicus

<400> 59

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Gly	Val	Tyr	Val	Gly	Ser	Gly	Gly	Trp	Arg	Phe	Leu	Arg	Ile	Val	Cys	40	45	50	55
Lys	Thr	Ala	Arg	Arg	Asp	Leu	Phe	Gly	Leu	Ser	Val	Leu	Ile	Arg	Val	60	65	70	75
Arg	Leu	Glu	Leu	Arg	Arg	His	Arg	Arg	Ala	Gly	Asp	Thr	Ile	Pro	Arg	80	85	90	95
Ile	Phe	Gln	Ala	Val	Ala	Gln	Arg	Gln	Pro	Glu	Arg	Leu	Ala	Leu	Val	100	105	110	115
Asp	Ala	Ser	Ser	Gly	Ile	Cys	Trp	Thr	Phe	Ala	Gln	Leu	Asp	Thr	Tyr	120	125	130	135
Ser	Asn	Ala	Val	Ala	Asn	Leu	Phe	Leu	Gln	Leu	Gly	Phe	Ala	Pro	Gly	140	145	150	155
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Trp	Leu	Gly	Leu	Ala	Lys	Ala	Gly	Val	Val	Ala	Ala	Leu	Leu	Asn	Val	180	185	190	195
Asn	Leu	Arg	Arg	Glu	Pro	Leu	Ala	Phe	Cys	Leu	Gly	Thr	Ser	Ala	Ala	200	205	210	215
Lys	Ala	Leu	Ile	Tyr	Gly	Gly	Glu	Met	Ala	Ala	Ala	Val	Ala	Glu	Val	220	225	230	235
Ser	Glu	Gln	Leu	Gly	Lys	Ser	Leu	Leu	Lys	Phe	Cys	Ser	Gly	Asp	Leu	240	245	250	255
Gly	Pro	Glu	Ser	Val	Leu	Pro	Asp	Thr	Gln	Leu	Leu	Asp	Pro	Met	Leu	260	265	270	275
Ala	Glu	Ala	Pro	Thr	Thr	Pro	Leu	Ala	Gln	Ala	Pro	Gly	Lys	Gly	Met	280	285	290	295
Asp	Asp	Arg	Leu	Phe	Tyr	Ile	Tyr	Thr	Ser	Gly	Thr	Thr	Gly	Leu	Pro	300	305	310	315
Lys	Ala	Ala	Ile	Val	Val	His	Ser	Arg	Tyr	Tyr	Arg	Ile	Ala	Ala	Phe	320	325	330	335
Gly	His	His	Ser	Tyr	Ser	Met	Arg	Ala	Asn	Asp	Val	Leu	Tyr	Asp	Cys	340	345	350	355
Leu	Pro	Leu	Tyr	His	Ser	Ala	Gly	Asn	Ile	Met	Gly	Val	Gly	Gln	Cys	360	365	370	375
Ile	Ile	Tyr	Gly	Leu	Thr	Val	Val	Leu	Arg	Lys	Lys	Phe	Ser	Ala	Ser	380	385	390	395
Arg	Phe	Trp	Asp	Asp	Cys	Val	Lys	Tyr	Asn	Cys	Thr	Val	Val	Gln	Tyr	400	405	410	415
Ile	Gly	Glu	Ile	Cys	Arg	Tyr	Leu	Leu	Arg	Gln	Pro	Val	Arg	Asp	Val	420	425	430	435
Glu	Arg	Arg	His	Arg	Val	Arg	Leu	Ala	Val	Gly	Asn	Gly	Leu	Arg	Pro	440	445	450	455

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 Glu Phe Tyr Gly Ala Thr Glu Cys Asn Cys Ser Ile Ala Asn Met Asp
 385 390 395 400
 Gly Lys Val Gly Ser Cys Gly Phe Asn Ser Arg Ile Leu Thr His Val
 405 410 415
 Tyr Pro Ile Arg Leu Val Lys Val Asn Glu Asp Thr Met Glu Pro Leu
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 Arg Asp Ser Gln Gly Leu Cys Ile Pro Cys Gln Pro Gly Glu Pro Gly
 435 440 445
 Leu Leu Val Gly Gln Ile Asn Gln Gln Asp Pro Leu Arg Arg Phe Asp
 450 455 460
 Gly Tyr Val Ser Asp Ser Ala Thr Asn Lys Lys Ile Ala His Ser Val
 465 470 475 480
 Phe Arg Lys Gly Asp Ser Ala Tyr Leu Ser Gly Asp Val Leu Val Met
 485 490 495
 Asp Glu Leu Gly Tyr Met Tyr Phe Arg Asp Arg Ser Gly Asp Thr Phe
 500 505 510
 Arg Trp Arg Gly Glu Asn Val Ser Thr Thr Glu Val Glu Ala Val Leu
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 Ser Arg Leu Leu Gly Gln Thr Asp Val Ala Val Tyr Gly Val Ala Val
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 Pro Gly Val Glu Gly Lys Ser Gly Met Ala Ala Ile Ala Asp Pro His
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 Asn Gln Leu Asp Pro Asn Ser Met Tyr Gln Glu Leu Gln Lys Val Leu
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 Ala Ser Tyr Ala Gln Pro Ile Phe Leu Arg Leu Leu Pro Gln Val Asp
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 Thr Thr Gly Thr Phe Lys Ile Gln Lys Thr Arg Leu Gln Arg Glu Gly
 595 600 605
 Phe Asp Pro Arg Gln Thr Ser Asp Arg Leu Phe Phe Leu Asp Leu Lys
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 <212> DNA
 <213> Rattus norvegicus

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Tyr	Phe	Met	Asp	Asp	Thr	Glu	Lys	Thr	Tyr	Val	Pro	Met	Thr	Glu	Asp	
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 Gly Glu Leu Cys Arg Tyr Leu Leu Asn Gln Pro Pro Arg Glu Ala Glu
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 195 200 205
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 Tyr Leu Asn Gln Gly Ala Asn Asn Lys Lys Ile Ala Ser Asp Val Phe
 225 230 235 240
 Lys Lys Gly Asp Gln Ala Tyr Leu Thr Gly Asp Val Leu Val Met Asp
 245 250 255
 Glu Leu Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp Thr Phe Arg
 260 265 270
 Trp Lys Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser
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<211> 647
<212> PRT
<213> Mus musculus
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| 1   |     |     |       | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Trp | Phe | Leu   | Gly | Leu | Pro | Trp | Thr | Trp | Ser | Ala | Ala | Ala | Ala | Phe |
|     |     |     | 20    |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Cys | Val | Tyr | Val   | Gly | Gly | Gly | Gly | Trp | Arg | Phe | Leu | Arg | Ile | Val | Cys |
|     |     | 35  |       |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Lys | Thr | Ala | Arg   | Arg | Asp | Leu | Phe | Gly | Leu | Ser | Val | Leu | Ile | Arg | Val |
|     | 50  |     |       |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Arg | Leu | Glu | Leu   | Arg | Arg | His | Arg | Arg | Ala | Gly | Asp | Thr | Ile | Pro | Cys |
| 65  |     |     |       |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Ile | Phe | Gln | Ala   | Val | Ala | Arg | Arg | Gln | Pro | Glu | Arg | Leu | Ala | Leu | Val |
|     |     |     |       | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Ala | Ser | Ser   | Gly | Ile | Cys | Trp | Thr | Phe | Ala | Gln | Leu | Asp | Thr | Tyr |
|     |     |     | 100   |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ser | Asn | Ala | Val   | Ala | Asn | Leu | Phe | Arg | Gln | Leu | Gly | Phe | Ala | Pro | Gly |
|     |     | 115 |       |     |     |     | 120 |     |     |     |     | 125 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Val | Val | Ala | Val | Phe | Leu | Glu | Gly | Arg | Pro | Glu | Phe | Val | Gly | Leu | 130 | 135 | 140 |
| Trp | Leu | Gly | Leu | Ala | Lys | Ala | Gly | Val | Val | Ala | Ala | Leu | Leu | Asn | Val | 145 | 150 | 155 |
| Asn | Leu | Arg | Arg | Glu | Pro | Leu | Ala | Phe | Cys | Leu | Gly | Thr | Ser | Ala | Ala | 165 | 170 | 175 |
| Lys | Ala | Leu | Ile | Tyr | Gly | Gly | Glu | Met | Ala | Ala | Ala | Val | Ala | Glu | Val | 180 | 185 | 190 |
| Ser | Glu | Gln | Leu | Gly | Lys | Ser | Leu | Leu | Lys | Phe | Cys | Ser | Gly | Asp | Leu | 195 | 200 | 205 |
| Gly | Pro | Glu | Ser | Ile | Leu | Pro | Asp | Thr | Gln | Leu | Leu | Asp | Pro | Met | Leu | 210 | 215 | 220 |
| Ala | Glu | Ala | Pro | Thr | Thr | Pro | Leu | Ala | Gln | Ala | Pro | Gly | Lys | Gly | Met | 225 | 230 | 235 |
| Asp | Asp | Arg | Leu | Phe | Tyr | Ile | Tyr | Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | 245 | 250 | 255 |
| Lys | Ala | Ala | Ile | Val | Val | His | Ser | Arg | Tyr | Tyr | Arg | Ile | Ala | Ala | Phe | 260 | 265 | 270 |
| Gly | His | His | Ser | Tyr | Ser | Met | Arg | Ala | Ala | Asp | Val | Leu | Tyr | Asp | Cys | 275 | 280 | 285 |
| Leu | Pro | Leu | Tyr | His | Ser | Ala | Gly | Asn | Ile | Met | Gly | Val | Gly | Gln | Cys | 290 | 295 | 300 |
| Val | Ile | Tyr | Gly | Leu | Thr | Val | Val | Leu | Arg | Lys | Lys | Phe | Ser | Ala | Ser | 305 | 310 | 315 |
| Arg | Phe | Trp | Asp | Asp | Cys | Val | Lys | Tyr | Asn | Cys | Thr | Val | Val | Asp | Asp | 325 | 330 | 335 |
| Ile | Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu | Arg | Gln | Pro | Val | Arg | Asp | Val | 340 | 345 | 350 |
| Glu | Gln | Arg | His | Arg | Val | Arg | Leu | Ala | Val | Gly | Asn | Gly | Leu | Arg | Pro | 355 | 360 | 365 |
| Ala | Ile | Trp | Glu | Glu | Phe | Thr | Gln | Arg | Phe | Gly | Val | Pro | Gln | Ile | Gly | 370 | 375 | 380 |
| Glu | Phe | Tyr | Gly | Ala | Thr | Glu | Cys | Asn | Cys | Ser | Ile | Ala | Asn | Met | Asp | 385 | 390 | 395 |
| Gly | Lys | Val | Gly | Ser | Cys | Gly | Phe | Asn | Ser | Arg | Ile | Leu | Thr | His | Val | 405 | 410 | 415 |
| Tyr | Pro | Ile | Arg | Leu | Val | Lys | Val | Asn | Glu | Asp | Thr | Met | Glu | Pro | Leu | 420 | 425 | 430 |
| Arg | Asp | Ser | Glu | Gly | Leu | Cys | Ile | Pro | Cys | Gln | Pro | Gly | Glu | Pro | Gly | 435 | 440 | 445 |
| Leu | Leu | Val | Gly | Gln | Ile | Asn | Gln | Gln | Asp | Pro | Leu | Arg | Arg | Phe | Asp | 450 | 455 | 460 |
| Gly | Tyr | Val | Ser | Asp | Ser | Ala | Thr | Asn | Lys | Lys | Ile | Ala | His | Ser | Val | 465 | 470 | 475 |
| Phe | Arg | Lys | Gly | Asp | Ser | Ala | Tyr | Leu | Ser | Gly | Asp | Val | Leu | Val | Met | 485 | 490 | 495 |
| Asp | Glu | Leu | Gly | Tyr | Met | Tyr | Phe | Arg | Asp | Arg | Ser | Gly | Asp | Thr | Phe | 500 | 505 | 510 |
| Arg | Trp | Arg | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val | Glu | Ala | Val | Leu | 515 | 520 | 525 |
| Ser | Arg | Leu | Leu | Gly | Gln | Thr | Asp | Val | Ala | Val | Tyr | Gly | Val | Ala | Val | 530 | 535 | 540 |
| Pro | Gly | Val | Glu | Gly | Lys | Ala | Gly | Met | Ala | Ala | Ile | Ala | Asp | Pro | His | 545 | 550 | 555 |
| Ser | Gln | Leu | Asp | Pro | Asn | Ser | Met | Tyr | Gln | Glu | Leu | Gln | Lys | Val | Leu | 565 | 570 | 575 |
| Ala | Ser | Tyr | Ala | Arg | Pro | Ile | Phe | Leu | Arg | Leu | Leu | Pro | Gln | Val | Asp | 580 | 585 | 590 |



Thr Thr Gly Thr Phe Lys Ile Gln Lys Thr Arg Leu Gln Arg Glu Gly  
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 Phe Asp Pro Arg Gln Thr Ser Asp Arg Leu Phe Phe Leu Asp Leu Lys  
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<400> 67

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Pro | Val | Leu | Tyr | Thr | Gly | Leu | Ala | Gly | Leu | Leu | Leu | Leu | Pro | 1   | 5   | 10  | 15  |
| Leu | Leu | Leu | Thr | Cys | Cys | Cys | Pro | Tyr | Leu | Leu | Gln | Asp | Val | Arg | Tyr | 20  | 25  | 30  |     |
| Phe | Leu | Arg | Leu | Ala | Asn | Met | Ala | Arg | Arg | Val | Arg | Ser | Tyr | Arg | Gln | 35  | 40  | 45  |     |
| Arg | Arg | Pro | Val | Arg | Thr | Ile | Leu | Arg | Ala | Phe | Leu | Glu | Gln | Ala | Arg | 50  | 55  | 60  |     |
| Lys | Thr | Pro | His | Lys | Pro | Phe | Leu | Leu | Phe | Arg | Asp | Glu | Thr | Leu | Thr | 65  | 70  | 75  | 80  |
| Tyr | Ala | Gln | Val | Asp | Arg | Arg | Ser | Asn | Gln | Val | Ala | Arg | Ala | Leu | His | 85  | 90  | 95  |     |
| Asp | Gln | Leu | Gly | Leu | Arg | Gln | Gly | Asp | Cys | Val | Ala | Leu | Phe | Met | Gly | 100 | 105 | 110 |     |
| Asn | Glu | Pro | Ala | Tyr | Val | Trp | Ile | Trp | Leu | Gly | Leu | Leu | Lys | Leu | Gly | 115 | 120 | 125 |     |
| Cys | Pro | Met | Ala | Cys | Leu | Asn | Tyr | Asn | Ile | Arg | Ala | Lys | Ser | Leu | Leu | 130 | 135 | 140 |     |
| His | Cys | Phe | Gln | Cys | Cys | Gly | Ala | Lys | Val | Leu | Leu | Ala | Ser | Pro | Asp | 145 | 150 | 155 | 160 |
| Leu | Gln | Glu | Ala | Val | Glu | Glu | Val | Leu | Pro | Thr | Leu | Lys | Lys | Asp | Ala | 165 | 170 | 175 |     |
| Val | Ser | Val | Phe | Tyr | Val | Ser | Arg | Thr | Ser | Asn | Thr | Asn | Gly | Val | Asp | 180 | 185 | 190 |     |
| Thr | Ile | Leu | Asp | Lys | Val | Asp | Gly | Val | Ser | Ala | Glu | Pro | Thr | Pro | Glu | 195 | 200 | 205 |     |
| Ser | Trp | Arg | Ser | Glu | Val | Thr | Phe | Thr | Thr | Pro | Ala | Val | Tyr | Ile | Tyr | 210 | 215 | 220 |     |
| Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | Lys | Ser | Gly | Thr | Ile | Asn | His | His | 225 | 230 | 235 | 240 |
| Arg | Leu | Arg | Tyr | Gly | Thr | Ser | Leu | Ala | Met | Ser | Ser | Gly | Asn | His | Gly | 245 | 250 | 255 |     |
| Gln | Gly | Cys | His | Leu | Tyr | Gln | Gln | Cys | Pro | Cys | Ser | Asn | Ser | Ala | Thr | 260 | 265 | 270 |     |
| Leu | Lys | Ile | Gly | Leu | His | Gly | Cys | Ile | Leu | Gly | Trp | Gly | Tyr | Phe | Asn | 275 | 280 | 285 |     |
| Leu | Gly | Gly | Ala | Asn | Ser | Gln | Ala | Ser | Gln | Phe | Trp | Glu | Arg | Leu | Ala | 290 | 295 | 300 |     |
| Gly | Asn | Thr | Thr | Ser | Thr | Val | Ile | Gln | Tyr | Ile | Gly | Glu | Leu | Leu | Arg | 305 | 310 | 315 | 320 |
| Tyr | Leu | Cys | Asn | Thr | Pro | Gln | Lys | Pro | Asn | Asp | Arg | Asp | His | Lys | Val | 325 | 330 | 335 |     |
| Lys | Lys | Ala | Leu | Gly | Asn | Gly | Leu | Arg | Gly | Asp | Val | Trp | Arg | Glu | Phe | 340 | 345 | 350 |     |
| Ile | Lys | Arg | Phe | Gly | Asp | Ile | His | Val | Tyr | Glu | Phe | Tyr | Ala | Ser | Thr | 355 | 360 | 365 |     |
| Glu | Gly | Asn | Ile | Gly | Phe | Val | Asn | Tyr | Pro | Arg | Lys | Ile | Gly | Ala | Val | 370 | 375 | 380 |     |
| Gly | Arg | Ala | Asn | Tyr | Leu | Gln | Arg | Lys | Val | Ala | Arg | Tyr | Glu | Leu | Ile | 385 | 390 | 395 | 400 |
| Lys | Tyr | Asp | Val | Glu | Lys | Asp | Glu | Pro | Val | Arg | Asp | Ala | Asn | Gly | Tyr | 405 | 410 | 415 |     |
| Cys | Ile | Lys | Val | Pro | Lys | Gly | Glu | Val | Gly | Leu | Leu | Val | Cys | Lys | Ile | 420 | 425 | 430 |     |
| Thr | Gln | Leu | Thr | Pro | Phe | Ile | Gly | Tyr | Ala | Gly | Gly | Lys | Thr | Gln | Thr | 435 | 440 | 445 |     |
| Glu | Lys | Lys | Lys | Leu | Arg | Asp | Val | Phe | Lys | Lys | Gly | Asp | Ile | Tyr | Phe | 450 | 455 | 460 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Gly | Asp | Leu | Leu | Met | Ile | Asp | Arg | Glu | Asn | Phe | Val | Tyr | Phe |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| His | Asp | Arg | Val | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val | Ala |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |
| Thr | Thr | Glu | Val | Ala | Asp | Ile | Val | Gly | Leu | Val | Asp | Phe | Val | Glu | Glu |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Val | Asn | Val | Tyr | Gly | Val | Pro | Val | Pro | Gly | His | Glu | Gly | Arg | Ile | Gly |
|     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |     |
| Met | Ala | Ser | Leu | Lys | Ile | Lys | Glu | Asn | Tyr | Glu | Phe | Asn | Gly | Lys | Lys |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Leu | Phe | Gln | His | Ile | Ala | Glu | Tyr | Leu | Pro | Ser | Tyr | Ala | Arg | Pro | Arg |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Phe | Leu | Arg | Ile | Gln | Asp | Thr | Ile | Glu | Ile | Thr | Gly | Thr | Phe | Lys | His |
|     |     |     |     | 565 |     |     |     | 570 |     |     |     |     |     | 575 |     |
| Arg | Lys | Val | Thr | Leu | Met | Glu | Glu | Gly | Phe | Asn | Pro | Thr | Val | Ile | Lys |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Asp | Thr | Leu | Tyr | Phe | Met | Asp | Asp | Ala | Glu | Lys | Thr | Phe | Val | Pro | Met |
|     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |     |
| Thr | Glu | Asn | Ile | Tyr | Asn | Ala | Ile | Ile | Asp | Lys | Thr | Leu | Lys | Leu |     |
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<210> 68  
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| ccgacacaca | ccttcctcat | ccacggcgcg  | cagcgcttta | gctacgcgga  | ggctgagcgc | 120  |
| gagagcaacc | ggattgctcg | cgcctttctg  | cgcgcacggg | gctggaccgg  | gggccgccga | 180  |
| ggctcgggca | ggggcagcac | tgaggaaggc  | gcacgcgtgg | cgctccggc   | tggagatgcg | 240  |
| gctgctagag | ggacgaccgc | gccccctctg  | gcacccgggg | cgacctgggc  | gctgctcctc | 300  |
| ccagcggggc | cggatttctt | ttggatttgg  | ttcggaactg | ccaaagctgg  | cctgcgcacg | 360  |
| gcctttgtgc | ccaccgcttt | acgccgagga  | ccctgctg   | actgcctccg  | cagctgcggt | 420  |
| gcgagtgcgc | tcgtgctggc | cacagagtcc  | ctggagtccc | tggagccgga  | cctgcccggc | 480  |
| ttgagagcca | tggggctcca | cctatggg    | acgggccc   | aaactaatgt  | agctggaatc | 540  |
| agcaatttgc | tatcggaagc | agcagaccaa  | gtggatgagc | cagtgcgggg  | gtacctctct | 600  |
| gccccccaga | acataatgga | cacctgcctg  | tacatcttca | cctctggcac  | tactggcctg | 660  |
| cccaaggctg | ctcgaatcag | tcatctgaag  | gttctacagt | gccagggatt  | ctaccatctg | 720  |
| tgtggagtc  | accaggagga | cgtgatctac  | ctcgactccc | cactgtacca  | catgtctggc | 780  |
| tcccttctg  | gcattgtggg | ctgcttgggc  | attggggcca | ccgtggtgct  | gaaacccaag | 840  |
| ttctcagcta | gccagttctg | ggacgattgc  | cagaaacaca | gggtgacagt  | gttccagtac | 900  |
| attggggagt | tgtgccgata | cctcgtcaac  | cagccccga  | gcaaggcaga  | gtttgaccat | 960  |
| aagggtgcgt | tggcagtg   | cagtgggttg  | cgccagaca  | cctgggagcg  | tttctgcgg  | 1020 |
| cgatttggac | ctctgcagat | actggagacg  | tatggcatga | cagagggcaa  | cgtagctacg | 1080 |
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| ttccccctt  | ccttgattcg | atacgatgtc  | atgacagggg | agcctattcg  | gaatgcccag | 1200 |
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| ccgtatgccc | gacctcggtt | tctcaggctc  | caggaatctt | tggccactac  | tgagaccttc | 1680 |
| aaacagcaga | aggttaggat | ggccaatgag  | ggctttgacc | ccagtgtact  | gtctgacca  | 1740 |
| ctctatgttc | tggaccaaga | tatagggggc  | tacctgcccc | tcacacctgc  | ccggtacagt | 1800 |
| gccctcctgt | ctggagacct | tccaatctga  | aaccttccac | ttgagggagg  | ggctcggagg | 1860 |
| gtacaggcca | ccatggctgc | accagggagg  | gttttcgggt | atcttttgta  | tatggagtca | 1920 |

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1980

1998

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 <213> Mus musculus

<400> 69

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| Glu | Ser | Ser | Glu | Ser | Gly | Cys | Ser | Leu | Ala | Trp | Arg | Leu | Ala | Tyr | Leu | 1   | 5   | 10  | 15  |
| Ala | Arg | Glu | Gln | Pro | Thr | His | Thr | Phe | Leu | Ile | His | Gly | Ala | Gln | Arg | 20  | 25  | 30  |     |
| Phe | Ser | Tyr | Ala | Glu | Ala | Glu | Arg | Glu | Ser | Asn | Arg | Ile | Ala | Arg | Ala | 35  | 40  | 45  |     |
| Phe | Leu | Arg | Ala | Arg | Gly | Trp | Thr | Gly | Gly | Arg | Arg | Gly | Ser | Gly | Arg | 50  | 55  | 60  |     |
| Gly | Ser | Thr | Glu | Glu | Gly | Ala | Arg | Val | Ala | Pro | Pro | Ala | Gly | Asp | Ala | 65  | 70  | 75  | 80  |
| Ala | Ala | Arg | Gly | Thr | Thr | Ala | Pro | Pro | Leu | Ala | Pro | Gly | Ala | Thr | Val | 85  | 90  | 95  |     |
| Ala | Leu | Leu | Leu | Pro | Ala | Gly | Pro | Asp | Phe | Leu | Trp | Ile | Trp | Phe | Gly | 100 | 105 | 110 |     |
| Leu | Ala | Lys | Ala | Gly | Leu | Arg | Thr | Ala | Phe | Val | Pro | Thr | Ala | Leu | Arg | 115 | 120 | 125 |     |
| Arg | Gly | Pro | Leu | Leu | His | Cys | Leu | Arg | Ser | Cys | Gly | Ala | Ser | Ala | Leu | 130 | 135 | 140 |     |
| Val | Leu | Ala | Thr | Glu | Phe | Leu | Glu | Ser | Leu | Glu | Pro | Asp | Leu | Pro | Ala | 145 | 150 | 155 | 160 |
| Leu | Arg | Ala | Met | Gly | Leu | His | Leu | Trp | Ala | Thr | Gly | Pro | Glu | Thr | Asn | 165 | 170 | 175 |     |
| Val | Ala | Gly | Ile | Ser | Asn | Leu | Leu | Ser | Glu | Ala | Ala | Asp | Gln | Val | Asp | 180 | 185 | 190 |     |
| Glu | Pro | Val | Pro | Gly | Tyr | Leu | Ser | Ala | Pro | Gln | Asn | Ile | Met | Asp | Thr | 195 | 200 | 205 |     |
| Cys | Leu | Tyr | Ile | Phe | Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | Lys | Ala | Ala | 210 | 215 | 220 |     |
| Arg | Ile | Ser | His | Leu | Lys | Val | Leu | Gln | Cys | Gln | Gly | Phe | Tyr | His | Leu | 225 | 230 | 235 | 240 |
| Cys | Gly | Val | His | Gln | Glu | Asp | Val | Ile | Tyr | Leu | Ala | Leu | Pro | Leu | Tyr | 245 | 250 | 255 |     |
| His | Met | Ser | Gly | Ser | Leu | Leu | Gly | Ile | Val | Gly | Cys | Leu | Gly | Ile | Gly | 260 | 265 | 270 |     |
| Ala | Thr | Val | Val | Leu | Lys | Pro | Lys | Phe | Ser | Ala | Ser | Gln | Phe | Trp | Asp | 275 | 280 | 285 |     |
| Asp | Cys | Gln | Lys | His | Arg | Val | Thr | Val | Phe | Gln | Tyr | Ile | Gly | Glu | Leu | 290 | 295 | 300 |     |
| Cys | Arg | Tyr | Leu | Val | Asn | Gln | Pro | Pro | Ser | Lys | Ala | Glu | Phe | Asp | His | 305 | 310 | 315 | 320 |
| Lys | Val | Arg | Leu | Ala | Val | Gly | Ser | Gly | Leu | Arg | Pro | Asp | Thr | Trp | Glu | 325 | 330 | 335 |     |
| Arg | Phe | Leu | Arg | Arg | Phe | Gly | Pro | Leu | Gln | Ile | Leu | Glu | Thr | Tyr | Gly | 340 | 345 | 350 |     |
| Met | Thr | Glu | Gly | Asn | Val | Ala | Thr | Phe | Asn | Tyr | Thr | Gly | Arg | Gln | Gly | 355 | 360 | 365 |     |
| Ala | Val | Gly | Arg | Ala | Ser | Trp | Leu | Tyr | Lys | His | Ile | Phe | Pro | Phe | Ser | 370 | 375 | 380 |     |
| Leu | Ile | Arg | Tyr | Asp | Val | Met | Thr | Gly | Glu | Pro | Ile | Arg | Asn | Ala | Gln | 385 | 390 | 395 | 400 |

[illegible]

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| ccctggaccc | aggtgggatt | ctccctgttg  | ctcctgtact | tggggctctg  | tggctggcgt  | 120  |
| ttcatccggg | tcttcatcaa | gacggtcagg  | agagatatct | ttggtggcat  | ggtgctcctg  | 180  |
| aaggtgaaga | ccaaggtgcg | acggtacctt  | caggagcggg | agacggtgcc  | cctgctgttt  | 240  |
| gcttcaatgg | tacagcgcca | cccggacaag  | acagccctga | ttttcgaggg  | cacagacact  | 300  |
| cactggacct | tccgccagct | ggatgagtac  | tccagtagtg | tggccaactt  | cctgcagccc  | 360  |
| cggggcctgg | cctcaggcaa | tgtagttgcc  | ctctttatgg | aaaaccgcaa  | tgagtttg    | 420  |
| ggtctgtggc | taggcatggc | caagctgggc  | gtggaggcgg | ctctcatcaa  | caccaacctt  | 480  |
| aggcgggatg | ccctgcgcca | ctgtcttgac  | acctcaaagg | cacgagctct  | catctttggc  | 540  |
| agtgagatgg | cctcagctat | ctgtgagatc  | catgctagcc | tggagcccac  | actcagcctc  | 600  |
| ttctgctctg | gatcctggga | gcccagcaca  | gtgcccgta  | gcacagagca  | tctggaccct  | 660  |
| cttctggaag | atgccccgaa | gcacctgcc   | agtcacccag | acaagggttt  | tacagataag  | 720  |
| ctcttctaca | tctacacatc | gggcaccacg  | gggctaccca | aagctgccat  | tgtggtgcac  | 780  |
| agcaggtatt | atcgatatgg | tccctgggtg  | tactatggat | tccgcatgcg  | gcctgatgac  | 840  |
| attgtctatg | actgcctccc | ccctctaccg  | tcaagcagga | aacatcgtgg  | ggatggcgag  | 900  |
| tgcttactcc | acggcatgac | tgtggtgatc  | cggaagaagt | tctcagcctc  | ccggttctgg  | 960  |
| gatgattgta | tcaagtacaa | ctgcacagtg  | gtacagtaca | ttggcgagct  | ctgccgctac  | 1020 |
| ctcctgaacc | agccaccccg | tgaggctgag  | tctcggcaca | aggtgcgcac  | ggcactgggc  | 1080 |
| aacggtctcc | ggcagtcctc | ctggaccgac  | ttctccagcc | gtttccacat  | cccccagggtg | 1140 |
| gctgagttct | atggggccac | tgaatgcaac  | tgtagcctgg | gcaactttga  | cagccgggtg  | 1200 |
| ggggcctgtg | gcttcaatag | ccgcatacctg | tcctttgtgt | accctatccg  | tttggtacgt  | 1260 |
| gtcaatgagg | ataccatgga | actgatcccg  | ggaccgcatg | gagtcctgc   | tccctgtcaa  | 1320 |
| ccaggtcagc | caggccagct | ggtgggtcgc  | atcatccagc | aggaccctct  | gcgccgtttc  | 1380 |
| gacgggtacc | tcaaccaggg | tgccaacaac  | aagaagattg | ctaattgatgt | cttcaagaa   | 1440 |

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<210> 71
<211> 643
<212> PRT
<213> Mus musculus

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<400> 71
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Val Leu Lys Leu Pro Trp Thr Gln Val Gly Phe Ser Leu Leu Leu
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Tyr Leu Gly Ser Gly Gly Trp Arg Phe Ile Arg Val Phe Ile Lys Thr
35 40 45
Val Arg Arg Asp Ile Phe Gly Gly Met Val Leu Leu Lys Val Lys Thr
50 55 60
Lys Val Arg Arg Tyr Leu Gln Glu Arg Lys Thr Val Pro Leu Leu Phe
65 70 75 80
Ala Ser Met Val Gln Arg His Pro Asp Lys Thr Ala Leu Ile Phe Glu
85 90 95
Gly Thr Asp Thr His Trp Thr Phe Arg Gln Leu Asp Glu Tyr Ser Ser
100 105 110
Ser Val Ala Asn Phe Leu Gln Ala Arg Gly Leu Ala Ser Gly Asn Val
115 120 125
Val Ala Leu Phe Met Glu Asn Arg Asn Glu Phe Val Gly Leu Trp Leu
130 135 140
Gly Met Ala Lys Leu Gly Val Glu Ala Ala Leu Ile Asn Thr Asn Leu
145 150 155 160
Arg Arg Asp Ala Leu Arg His Cys Leu Asp Thr Ser Lys Ala Arg Ala
165 170 175
Leu Ile Phe Gly Ser Glu Met Ala Ser Ala Ile Cys Glu Ile His Ala
180 185 190
Ser Leu Glu Pro Thr Leu Ser Leu Phe Cys Ser Gly Ser Trp Glu Pro
195 200 205
Ser Thr Val Pro Val Ser Thr Glu His Leu Asp Pro Leu Leu Glu Asp
210 215 220
Ala Pro Lys His Leu Pro Ser His Pro Asp Lys Gly Phe Thr Asp Lys
225 230 235 240

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Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly Leu Pro Lys Ala Ala  
 245 250 255  
 Ile Val Val His Ser Arg Tyr Tyr Arg Met Ala Ser Leu Val Tyr Tyr  
 260 265 270  
 Gly Phe Arg Met Arg Pro Asp Asp Ile Val Tyr Asp Cys Leu Pro Leu  
 275 280 285  
 Tyr His Ser Ser Arg Lys His Arg Gly Asp Trp Gln Cys Leu Leu His  
 290 295 300  
 Gly Met Thr Val Val Ile Arg Lys Lys Phe Ser Ala Ser Arg Phe Trp  
 305 310 315 320  
 Asp Asp Cys Ile Lys Tyr Asn Cys Thr Val Val Gln Tyr Ile Gly Glu  
 325 330 335  
 Leu Cys Arg Tyr Leu Leu Asn Gln Pro Pro Arg Glu Ala Glu Ser Arg  
 340 345 350  
 His Lys Val Arg Met Ala Leu Gly Asn Gly Leu Arg Gln Ser Ile Trp  
 355 360 365  
 Thr Asp Phe Ser Ser Arg Phe His Ile Pro Gln Val Ala Glu Phe Tyr  
 370 375 380  
 Gly Ala Thr Glu Cys Asn Cys Ser Leu Gly Asn Phe Asp Ser Arg Val  
 385 390 395 400  
 Gly Ala Cys Gly Phe Asn Ser Arg Ile Leu Ser Phe Val Tyr Pro Ile  
 405 410 415  
 Arg Leu Val Arg Val Asn Glu Asp Thr Met Glu Leu Ile Arg Gly Pro  
 420 425 430  
 Asp Gly Val Cys Ile Pro Cys Gln Pro Gly Gln Pro Gly Gln Leu Val  
 435 440 445  
 Gly Arg Ile Ile Gln Gln Asp Pro Leu Arg Arg Phe Asp Gly Tyr Leu  
 450 455 460  
 Asn Gln Gly Ala Asn Asn Lys Lys Ile Ala Asn Asp Val Phe Lys Lys  
 465 470 475 480  
 Gly Asp Gln Ala Tyr Leu Thr Gly Asp Val Leu Val Met Asp Glu Leu  
 485 490 495  
 Gly Tyr Leu Tyr Phe Arg Asp Arg Thr Gly Asp Thr Phe Arg Trp Lys  
 500 505 510  
 Gly Glu Asn Val Ser Thr Thr Glu Val Glu Gly Thr Leu Ser Arg Leu  
 515 520 525  
 Leu His Met Ala Asp Val Ala Val Tyr Gly Val Glu Val Pro Gly Thr  
 530 535 540  
 Glu Gly Arg Ala Gly Met Ala Ala Val Ala Ser Pro Ile Ser Asn Cys  
 545 550 555 560  
 Asp Leu Glu Ser Phe Ala Gln Thr Leu Lys Lys Glu Leu Pro Leu Tyr  
 565 570 575  
 Ala Arg Pro Ile Phe Leu Arg Phe Leu Pro Glu Leu His Lys Thr Gly  
 580 585 590  
 Thr Phe Lys Phe Gln Lys Thr Glu Leu Arg Lys Glu Gly Phe Asp Pro  
 595 600 605  
 Ser Val Val Lys Asp Pro Leu Phe Tyr Leu Asp Ala Arg Lys Gly Cys  
 610 615 620  
 Tyr Val Ala Leu Asp Gln Glu Ala Tyr Thr Arg Ile Gln Ala Gly Glu  
 625 630 635 640  
 Glu Lys Leu

&lt;210&gt; 72

&lt;211&gt; 2277

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;400&gt; 72

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| agcccccatg  | gccagcagct | atggctcttg  | ccctgcgttg  | gttcctggga  | gacccacat   | 180  |
| gccttgctgct | gcttggttg  | gcattgcttg  | gcagaccctg  | gatcagctcc  | tggatgcccc  | 240  |
| actggctgag  | cctggtagga | gcagctctta  | ccttattcct  | attgcctcta  | cagccacccc  | 300  |
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| taaagttcag  | gcgacgcctt | aacaaacatc  | ctccagagac  | ctttgtggat  | gcttttagagc | 420  |
| ggcaagcact  | ggcatggcct | gaccgggttg  | ccttggtgtg  | tactgggtct  | gagggctcct  | 480  |
| caatcacaaa  | tagccagctg | gatgccaggt  | cctgtcaggc  | agcatgggtc  | ctgaaagcaa  | 540  |
| agctgaagga  | tgccgtaatc | cagaacacaa  | gagatgctgc  | tgctatctta  | gttctcccgt  | 600  |
| ccaagaccat  | ttctgctttg | agtgtgtttc  | tggggttggc  | caagttgggc  | tgccctgttg  | 660  |
| cctggatcaa  | tccacacagc | cgagggatgc  | ccttgctaca  | ctctgtacgg  | agctctgggg  | 720  |
| ccagtgtgct  | gattgtggat | ccagacctcc  | aggagaacct  | ggaagaagtc  | cttcccaagc  | 780  |
| tgctagctga  | gaacattcac | tgcttctacc  | ttggccacag  | ctcaccacc   | ccgggagtag  | 840  |
| aggctctggg  | agcttccctg | gatgctgcac  | cttctgaccc  | agtacctgcc  | agccttcgag  | 900  |
| ctacgattaa  | gtggaaatct | cctgccatat  | tcactctttac | ttcagggacc  | actggactcc  | 960  |
| caaagccagc  | catcttatca | catgagcggg  | tcatacaagt  | gagcaacgtg  | ctgtccttct  | 1020 |
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| ttgtccttgg  | attccttggc | tgcttacaag  | ttggagccac  | ctgtgtcctg  | gcccccaagt  | 1140 |
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| gctttgggtcc | cattcggtac | tggaattct   | acggatccac  | agagggcaat  | gtgggcttaa  | 1380 |
| tgaactatgt  | gggccactgc | ggggctgtgg  | gaaggaccag  | ctgcctcctt  | cgaatgctga  | 1440 |
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| aaggcttctt  | ctactttcaa | gaccgccttg  | gtgacacctt  | ccggtggaag  | ggcgaaaacg  | 1740 |
| tatctactgg  | agaggtggag | tgtgttttgt  | ctagcctaga  | cttccctagag | gaagtcaatg  | 1800 |
| tctatggtgt  | gcctgtgcca | gggtgtgagg  | gtaagggttg  | catggctgct  | gtgaaactgg  | 1860 |
| ctcctgggaa  | gacttttgat | gggcagaagc  | tataccagca  | tgctccgctcc | tggtccctg   | 1920 |
| cctatgccac  | acctcatttc | atccgtatcc  | aggattccct  | ggagatcaca  | aacacctaca  | 1980 |
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| tctacatact  | ggacaacaag | gcccagacct  | tccggagtct  | gatgccagat  | gtgtaccagg  | 2100 |
| ctgtgtgtga  | aggaacctgg | aatctctgac  | cacctagcca  | actggaaggc  | aatccaaaag  | 2160 |
| tgtagagatt  | gacactagtc | agcttcacaa  | agttgtccgg  | gttccagatg  | cccatggccc  | 2220 |
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&lt;210&gt; 73

&lt;211&gt; 689

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;400&gt; 73

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Ile | Trp | Lys | Lys | Leu | Thr | Leu | Leu | Leu | Leu | Leu | Leu | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |
| Val | Gly | Leu | Gly | Gln | Pro | Pro | Trp | Pro | Ala | Ala | Met | Ala | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |
| Arg | Trp | Phe | Leu | Gly | Asp | Pro | Thr | Cys | Leu | Val | Leu | Leu | Gly | Leu |
|     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Leu | Leu | Gly | Arg | Pro | Trp | Ile | Ser | Ser | Trp | Met | Pro | His | Trp | Leu |
|     |     |     | 50  |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Leu | Val | Gly | Ala | Ala | Leu | Thr | Leu | Phe | Leu | Leu | Pro | Leu | Gln | Pro |
|     |     |     | 65  |     |     | 70  |     |     |     | 75  |     |     |     | 80  |
| Pro | Gly | Leu | Arg | Trp | Leu | His | Lys | Asp | Val | Ala | Phe | Thr | Phe | Lys |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |
| Leu | Phe | Tyr | Gly | Leu | Lys | Phe | Arg | Arg | Arg | Leu | Asn | Lys | His | Pro |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Glu | Thr | Phe | Val | Asp | Ala | Leu | Glu | Arg | Gln | Ala | Leu | Ala | Trp | Pro | Asp |  |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |  |
| Arg | Val | Ala | Leu | Val | Cys | Thr | Gly | Ser | Glu | Gly | Ser | Ser | Ile | Thr | Asn |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
| Ser | Gln | Leu | Asp | Ala | Arg | Ser | Cys | Gln | Ala | Ala | Trp | Val | Leu | Lys | Ala |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |
| Lys | Leu | Lys | Asp | Ala | Val | Ile | Gln | Asn | Thr | Arg | Asp | Ala | Ala | Ala | Ile |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |  |  |
| Leu | Val | Leu | Pro | Ser | Lys | Thr | Ile | Ser | Ala | Leu | Ser | Val | Phe | Leu | Gly |  |  |
|     |     |     | 180 |     |     |     |     |     | 185 |     |     |     |     | 190 |     |  |  |
| Leu | Ala | Lys | Leu | Gly | Cys | Pro | Val | Ala | Trp | Ile | Asn | Pro | His | Ser | Arg |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Gly | Met | Pro | Leu | Leu | His | Ser | Val | Arg | Ser | Ser | Gly | Ala | Ser | Val | Leu |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
| Ile | Val | Asp | Pro | Asp | Leu | Gln | Glu | Asn | Leu | Glu | Glu | Val | Leu | Pro | Lys |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
| Leu | Leu | Ala | Glu | Asn | Ile | His | Cys | Phe | Tyr | Leu | Gly | His | Ser | Ser | Pro |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |  |  |
| Thr | Pro | Gly | Val | Glu | Ala | Leu | Gly | Ala | Ser | Leu | Asp | Ala | Ala | Pro | Ser |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |  |  |
| Asp | Pro | Val | Pro | Ala | Ser | Leu | Arg | Ala | Thr | Ile | Lys | Trp | Lys | Ser | Pro |  |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Ala | Ile | Phe | Ile | Phe | Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | Lys | Pro | Ala |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Ile | Leu | Ser | His | Glu | Arg | Val | Ile | Gln | Val | Ser | Asn | Val | Leu | Ser | Phe |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Cys | Gly | Cys | Arg | Ala | Asp | Asp | Val | Val | Tyr | Asp | Val | Leu | Pro | Leu | Tyr |  |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
| His | Thr | Ile | Gly | Leu | Val | Leu | Gly | Phe | Leu | Gly | Cys | Leu | Gln | Val | Gly |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Ala | Thr | Cys | Val | Leu | Ala | Pro | Lys | Phe | Ser | Ala | Ser | Arg | Phe | Trp | Ala |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |
| Glu | Cys | Arg | Gln | His | Gly | Val | Thr | Val | Ile | Leu | Tyr | Val | Gly | Glu | Ile |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Leu | Arg | Tyr | Leu | Cys | Asn | Val | Pro | Glu | Gln | Pro | Glu | Asp | Lys | Ile | His |  |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |  |
| Thr | Val | Arg | Leu | Ala | Met | Gly | Thr | Gly | Leu | Arg | Ala | Asn | Val | Trp | Lys |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| Asn | Phe | Gln | Gln | Arg | Phe | Gly | Pro | Ile | Arg | Ile | Trp | Glu | Phe | Tyr | Gly |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Ser | Thr | Glu | Gly | Asn | Val | Gly | Leu | Met | Asn | Tyr | Val | Gly | His | Cys | Gly |  |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |  |
| Ala | Val | Gly | Arg | Thr | Ser | Cys | Ile | Leu | Arg | Met | Leu | Thr | Pro | Phe | Glu |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Leu | Val | Gln | Phe | Asp | Ile | Glu | Thr | Ala | Glu | Pro | Leu | Arg | Asp | Lys | Gln |  |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |  |
| Gly | Phe | Cys | Ile | Pro | Val | Glu | Pro | Gly | Lys | Pro | Gly | Leu | Leu | Leu | Thr |  |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |  |  |
| Lys | Val | Arg | Lys | Asn | Gln | Pro | Phe | Leu | Gly | Tyr | Arg | Gly | Ser | Gln | Ala |  |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Glu | Ser | Asn | Arg | Lys | Leu | Val | Ala | Asn | Val | Arg | Arg | Val | Gly | Asp | Leu |  |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |  |
| Tyr | Phe | Asn | Thr | Gly | Asp | Val | Leu | Thr | Leu | Asp | Gln | Glu | Gly | Phe | Phe |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Tyr | Phe | Gln | Asp | Arg | Leu | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn |  |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |  |
| Val | Ser | Thr | Gly | Glu | Val | Glu | Cys | Val | Leu | Ser | Ser | Leu | Asp | Phe | Leu |  |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |  |  |

Glu Glu Val Asn Val Tyr Gly Val Pro Val Pro Gly Cys Glu Gly Lys  
                   580                                  585                                  590  
 Val Gly Met Ala Ala Val Lys Leu Ala Pro Gly Lys Thr Phe Asp Gly  
                   595                                  600                                  605  
 Gln Lys Leu Tyr Gln His Val Arg Ser Trp Leu Pro Ala Tyr Ala Thr  
                   610                                  615                                  620  
 Pro His Phe Ile Arg Ile Gln Asp Ser Leu Glu Ile Thr Asn Thr Tyr  
                   625                                  630                                  635                                  640  
 Lys Leu Val Lys Ser Arg Leu Val Arg Glu Gly Phe Asp Val Gly Ile  
                                   645                                  650                                  655  
 Ile Ala Asp Pro Leu Tyr Ile Leu Asp Asn Lys Ala Gln Thr Phe Arg  
                                   660                                  665                                  670  
 Ser Leu Met Pro Asp Val Tyr Gln Ala Val Cys Glu Gly Thr Trp Asn  
                   675                                  680                                  685  
 Leu

&lt;210&gt; 74

&lt;211&gt; 2221

&lt;212&gt; DNA

<213> *Drosophila melanogaster*

&lt;400&gt; 74

|            |             |            |             |             |             |      |
|------------|-------------|------------|-------------|-------------|-------------|------|
| gctctctggg | cctatatcaa  | gctgctgagg | tacacgaagc  | gccatgagcg  | gctcaactac  | 60   |
| acggtggcgg | acgtcttcga  | acgaaatgtt | caggcccatc  | cggacaaggt  | ggctgtggtc  | 120  |
| agtgagacgc | aacgctggac  | cttcctgcag | gtgaacgagc  | atgcgaacaa  | ggtggccaat  | 180  |
| gtgctgcagg | ctcagggcta  | caaaaagggc | gatgtggtgg  | ccctgttgct  | ggagaaccgc  | 240  |
| gccgagtacg | tggccacctg  | gctgggtctc | tccaagatcg  | gtgtgatcac  | accgctgac   | 300  |
| aacacgaatc | tgcgcggtcc  | ctccctgctg | cacagcatca  | cggtgcccca  | ttgctcggct  | 360  |
| ctcatttacg | gcgaggactt  | cctggaagct | gtcaccgacg  | tggccaagga  | tctgccagcg  | 420  |
| aacctcacac | tcttccagtt  | caacaacgag | aacaacaaca  | gcgagacgga  | aaagaacata  | 480  |
| ccgcaggcca | agaatctgaa  | cgcgctgctg | accacggcca  | gctatgagaa  | gcctaacaag  | 540  |
| acgcaggtta | accaccacga  | caagctggtc | tacatctaca  | cctccggcac  | cacaggattg  | 600  |
| ccaaaggctg | cggttatctc  | tcaactcccg | tatctgttta  | tcgctgctgg  | catccactac  | 660  |
| accatgggtt | tcaggagga   | ggacatcttc | tacacgccct  | tgcccttgta  | ccacaccgct  | 720  |
| ggtggcatta | tgtgcatggg  | tcagtcggtg | ctctttggct  | ccacgggtctc | cattcgcaag  | 780  |
| aagttctcgg | catccaacta  | tttcgccgac | tgcgccaaagt | ataatgcaac  | tatttggtcag | 840  |
| tatatcggtg | agatggctcg  | ctacattcta | gctacgaaac  | cctcggaata  | cgaccagaaa  | 900  |
| caccgagtgc | gtctggctct  | tggaaacgga | ctgcgaccgc  | agatttggcc  | acagtttgtg  | 960  |
| cagcgcttca | acattgccaa  | ggttggcgag | ttctacggcg  | ccaccgaggg  | taatgcgaac  | 1020 |
| atcatgaatc | atgacaacac  | ggtgggcgcc | atcggtcttg  | tgtcgcgcac  | cctgcccacg  | 1080 |
| atctacccaa | tctcgatcat  | tcgcgccgat | cggacaccgc  | gagagcccat  | tagagatagg  | 1140 |
| aatggcctat | gccaactgtg  | cgctcccaac | gagccaggcg  | tattcatcgg  | caagatcgtc  | 1200 |
| aaaggaaatc | cttctcgcg   | attcctcgga | tacgtcgatg  | aaaaggcctc  | cgcgagaag   | 1260 |
| attgttaagg | atgtgttcaa  | gcatggcgat | atggctttca  | tctccggaga  | tctgctgggt  | 1320 |
| gccgacgaga | agggttatct  | gtacttcaag | gatcgcaccg  | gtgacacctt  | ccgctggaag  | 1380 |
| ggcgagaatg | tttccaccag  | cgaggtggag | gcgcaagtca  | gcaatgtggc  | cggttacaag  | 1440 |
| gataccgctg | tttacggcgt  | aaccattccg | cacaccgagg  | gaagggccgg  | catggccgcc  | 1500 |
| atctatgatc | cggagcgaga  | attggacctc | gacgtcttcg  | ccgctagctt  | ggccaagggtg | 1560 |
| ctgccccgct | acgctcgtcc  | ccagatcatt | cgattgctca  | ccaagggtgga | cctgactgga  | 1620 |
| acctttaagc | tgcgcaagg   | agacctgcag | aaggagggtc  | acgatccgaa  | cgcatcaag   | 1680 |
| gacgcgtgtg | actaccagac  | ttccaagggt | cggtacgagc  | tgctcacgcc  | ccaggtttac  | 1740 |
| gaccaggtgc | agcgcaacga  | aatccgcttc | taagagctgc  | aatagagttg  | tgtctgaacc  | 1800 |
| ttgccttttg | cccaatatgc  | tgtaattag  | tttgtaaggc  | taagtgtagt  | agaggaaaat  | 1860 |
| cgggggaaat | cggcagcaaa  | gatcattcag | cctaggagag  | atgcatccga  | agcacatttc  | 1920 |
| catgtcaaca | atgcactttt  | gtatatcgta | agcatatata  | tatcgatat   | cgtaaacgta  | 1980 |
| gttgtatctg | catttgtgtg  | gatgatagcc | tcctatacgc  | atttcaattg  | tttttagcgt  | 2040 |
| gctaaagaac | cttggttaaat | gcaatttcag | ctattgttta  | gtcagtttta  | gtggcattta  | 2100 |
| cacttccatt | ctcgttgctg  | ttcgtttttg | cctgtacata  | tgagaagctc  | tgatgttttt  | 2160 |

gtatcaaata aagtttttttc cttcaccacg gaccacgtga aaaaaaaaaa aaaaaaaaaa  
a

2220  
2221

<210> 75  
<211> 590  
<212> PRT  
<213> Drosophila melanogaster

<400> 75  
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Arg Leu Asn Tyr Thr Val Ala Asp Val Phe Glu Arg Asn Val Gln Ala  
20 25 30  
His Pro Asp Lys Val Ala Val Val Ser Glu Thr Gln Arg Trp Thr Phe  
35 40 45  
Arg Gln Val Asn Glu His Ala Asn Lys Val Ala Asn Val Leu Gln Ala  
50 55 60  
Gln Gly Tyr Lys Lys Gly Asp Val Val Ala Leu Leu Leu Glu Asn Arg  
65 70 75 80  
Ala Glu Tyr Val Ala Thr Trp Leu Gly Leu Ser Lys Ile Gly Val Ile  
85 90 95  
Thr Pro Leu Ile Asn Thr Asn Leu Arg Gly Pro Ser Leu Leu His Ser  
100 105 110  
Ile Thr Val Ala His Cys Ser Ala Leu Ile Tyr Gly Glu Asp Phe Leu  
115 120 125  
Glu Ala Val Thr Asp Val Ala Lys Asp Leu Pro Ala Asn Leu Thr Leu  
130 135 140  
Phe Gln Phe Asn Asn Glu Asn Asn Asn Ser Glu Thr Glu Lys Asn Ile  
145 150 155 160  
Pro Gln Ala Lys Asn Leu Asn Ala Leu Leu Thr Thr Ala Ser Tyr Glu  
165 170 175  
Lys Pro Asn Lys Thr Gln Val Asn His His Asp Lys Leu Val Tyr Ile  
180 185 190  
Tyr Thr Ser Gly Thr Thr Gly Leu Pro Lys Ala Ala Val Ile Ser His  
195 200 205  
Ser Arg Tyr Leu Phe Ile Ala Ala Gly Ile His Tyr Thr Met Gly Phe  
210 215 220  
Gln Glu Glu Asp Ile Phe Tyr Thr Pro Leu Pro Leu Tyr His Thr Ala  
225 230 235 240  
Gly Gly Ile Met Cys Met Gly Gln Ser Val Leu Phe Gly Ser Thr Val  
245 250 255  
Ser Ile Arg Lys Lys Phe Ser Ala Ser Asn Tyr Phe Ala Asp Cys Ala  
260 265 270  
Lys Tyr Asn Ala Thr Ile Gly Gln Tyr Ile Gly Glu Met Ala Arg Tyr  
275 280 285  
Ile Leu Ala Thr Lys Pro Ser Glu Tyr Asp Gln Lys His Arg Val Arg  
290 295 300  
Leu Val Phe Gly Asn Gly Leu Arg Pro Gln Ile Trp Pro Gln Phe Val  
305 310 315 320  
Gln Arg Phe Asn Ile Ala Lys Val Gly Glu Phe Tyr Gly Ala Thr Glu  
325 330 335  
Gly Asn Ala Asn Ile Met Asn His Asp Asn Thr Val Gly Ala Ile Gly  
340 345 350  
Phe Val Ser Arg Ile Leu Pro Lys Ile Tyr Pro Ile Ser Ile Ile Arg  
355 360 365  
Ala Asp Pro Asp Thr Gly Glu Pro Ile Arg Asp Arg Asn Gly Leu Cys  
370 375 380  
Gln Leu Cys Ala Pro Asn Glu Pro Gly Val Phe Ile Gly Lys Ile Val  
385 390 395 400

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Gly | Asn | Pro | Ser | Arg | Glu | Phe | Leu | Gly | Tyr | Val | Asp | Glu | Lys | Ala |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ser | Ala | Lys | Lys | Ile | Val | Lys | Asp | Val | Phe | Lys | His | Gly | Asp | Met | Ala |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Phe | Ile | Ser | Gly | Asp | Leu | Leu | Val | Ala | Asp | Glu | Lys | Gly | Tyr | Leu | Tyr |
|     |     |     | 435 |     |     |     | 440 |     |     |     |     |     | 445 |     |     |
| Phe | Lys | Asp | Arg | Thr | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Ser | Thr | Ser | Glu | Val | Glu | Ala | Gln | Val | Ser | Asn | Val | Ala | Gly | Tyr | Lys |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     | 480 |     |
| Asp | Thr | Val | Val | Tyr | Gly | Val | Thr | Ile | Pro | His | Thr | Glu | Gly | Arg | Ala |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Gly | Met | Ala | Ala | Ile | Tyr | Asp | Pro | Glu | Arg | Glu | Leu | Asp | Leu | Asp | Val |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Phe | Ala | Ala | Ser | Leu | Ala | Lys | Val | Leu | Pro | Ala | Tyr | Ala | Arg | Pro | Gln |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Ile | Ile | Arg | Leu | Leu | Thr | Lys | Val | Asp | Leu | Thr | Gly | Thr | Phe | Lys | Leu |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Arg | Lys | Val | Asp | Leu | Gln | Lys | Glu | Gly | Tyr | Asp | Pro | Asn | Ala | Ile | Lys |
| 545 |     |     |     |     | 550 |     |     |     | 555 |     |     |     |     | 560 |     |
| Asp | Ala | Leu | Tyr | Tyr | Gln | Thr | Ser | Lys | Gly | Arg | Tyr | Glu | Leu | Leu | Thr |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Pro | Gln | Val | Tyr | Asp | Gln | Val | Gln | Arg | Asn | Glu | Ile | Arg | Phe |     |     |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |

```
<210> 76
<211> 173
<212> DNA
<213> Danio rerio
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```

<400> 76
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gatccacggc tcacaactga ccagatctac ttcttaaact ccagagcagg gcgttacgag 120
cttqtcaacg aggagctgta caatgcattt gaacaagggc aggatttccc ttt 173

```

```
<210> 77
<211> 57
<212> PRT
<213> Danio rerio
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|     |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | <400> | 77  |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser | Val   | Asp | Thr | Thr | Gly | Thr | Phe | Lys | Ile | Gln | Lys | Thr | Arg | Leu | Gln |
| 1   |       |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Arg | Glu   | Gly | Tyr | Asp | Pro | Arg | Leu | Thr | Thr | Asp | Gln | Ile | Tyr | Phe | Leu |
|     |       |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Asn | Ser   | Arg | Ala | Gly | Arg | Tyr | Glu | Leu | Val | Asn | Glu | Glu | Leu | Tyr | Asn |
|     |       | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ala | Phe   | Glu | Gln | Gly | Gln | Asp | Phe | Pro |     |     |     |     |     |     |     |
|     | 50    |     |     |     |     | 55  |     |     |     |     |     |     |     |     |     |

```
<210> 78
<211> 1953
<212> DNA
<213> Caenorhabditis elegans
```

|            |            |            |            |            |            |     |
|------------|------------|------------|------------|------------|------------|-----|
| <400> 78   |            |            |            |            |            |     |
| atgaagctgg | aggagcttgt | gacagttatg | cttctcacag | tggctgtcat | tgctcagaat | 60  |
| cttccgattg | gagtaatat  | ggctggagtt | cttattttat | acatcacagt | ggttcatgga | 120 |
| gatttcattt | atagaagtta | tcttacgttg | aatagggatt | taacaggatt | ggctctaatt | 180 |

|             |            |             |             |             |             |      |
|-------------|------------|-------------|-------------|-------------|-------------|------|
| attgaagtca  | aaatcgacct | atgggtggagg | ttgcatcaga  | ataaaggaat  | ccatgaactg  | 240  |
| tttttgata   | ttgtgaaaaa | gaatccaaat  | aagccggcga  | tgattgacat  | cgagacgaat  | 300  |
| acaacagaaa  | catacgcaga | gttcaatgca  | cattgttaata | gatatgccaa  | ttatttccag  | 360  |
| ggctcttggt  | atcgatccgg | agacgttgct  | gccttgta    | tgagaaactc  | ggctcgagttt | 420  |
| gtggccgcgt  | ggatgggact | cgcaaaaatc  | ggagttgtaa  | cggcttggat  | caactcgaat  | 480  |
| ttgaaaagag  | agcaacttgt | tcattgtatc  | actgcgagca  | agacaaaggc  | gattatcaca  | 540  |
| agtgtaacac  | ttcagaatat | tatgcttgat  | gctatcgatc  | agaagctggt  | tgatgttgag  | 600  |
| ggaattgagg  | tttactctgt | cggagagccc  | aagaagaatt  | ctggattcaa  | gaatctcaag  | 660  |
| aagaagttgg  | atgctcaaat | tactacggaa  | ccaaagaccc  | ttgacatagt  | agattttaaa  | 720  |
| agtattcttt  | gcttcatcta | tacaagtggg  | actactggaa  | tgccaaaagc  | cgctgtcatg  | 780  |
| aagcacttca  | gatattactc | gattgccgtt  | ggagccgcaa  | aatcattcgg  | aatccgccct  | 840  |
| tctgatcgta  | tgtactgtct | gatgccaat   | tatcacactg  | cagctggaat  | tcttgagatt  | 900  |
| gggcaagctc  | tggtgggtgg | atcatcgtgt  | gtcattagaa  | aaaaattctc  | ggctagcaac  | 960  |
| ttttggaggg  | attgtgtaaa | gtatgattgt  | acagtttcac  | aatacattgg  | agagatttgt  | 1020 |
| cgggtacttgt | tggtctagcc | agttgtggaa  | gaggaatcca  | ggcatagaat  | gagattgttg  | 1080 |
| ggttgaaacg  | gactccgtgc | tgaaatctgg  | caaccatttg  | tagatcgatt  | ccgtgtcaga  | 1140 |
| attggagaac  | tttatggttc | aactgaagga  | acttcatctc  | tcgtgaacat  | tgacggacat  | 1200 |
| gtcggagctt  | gcggattctt | gccaatatcc  | ccattaacaa  | agaaaatgca  | tccggttcga  | 1260 |
| ttaattaagg  | ttgatgatgt | cactggagaa  | ccaatccgaa  | cttccgatgg  | actttgcatt  | 1320 |
| gcatgtaatc  | caggagagtc | tgaggaatg   | gtgtcgacga  | tcagaaaaaa  | taatccatta  | 1380 |
| ttgcaattcg  | agggatatct | gaataagaag  | gaaacgaata  | aaaagattat  | cagagatgtc  | 1440 |
| ttcgcaaaag  | gagatagttg | ctttttgact  | ggagatcttc  | ttcattggga  | tcgtcttggt  | 1500 |
| tatgtatatt  | tcaaggatcg | tactggagat  | actttccgtt  | ggaagggaga  | gaatgtgtcg  | 1560 |
| actactgaag  | tcgaggcaat | tcttcatcca  | attactggat  | tgtctgatgc  | aactgtttat  | 1620 |
| ggtgtagagg  | ttcctcaaag | agaggggaaga | ggttggaatgg | cgtcagttgt  | tcgagttgta  | 1680 |
| tcgcatgagg  | aagatgaaac | tcaatttggt  | catagagttg  | gagcaagact  | tgctcttcg   | 1740 |
| cttaccagct  | acgcgattcc | tcagtttatg  | cgaatttggtc | aggatgttga  | gaaaacaggt  | 1800 |
| acattcaaac  | ttgtgaagac | gaatctacaa  | cgattaggta  | tcattggatgc | tccttcagat  | 1860 |
| tcaatttaca  | tctacaattc | tgaaaatcgc  | aattttgtgc  | cgttcgacaa  | tgatttgagg  | 1920 |
| tgcaaggtct  | cactgggaag | ttatccattt  | taa         |             |             | 1953 |

&lt;210&gt; 79

&lt;211&gt; 650

&lt;212&gt; PRT

<213> *Caenorhabditis elegans*

&lt;400&gt; 79

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Leu | Glu | Glu | Leu | Val | Thr | Val | Met | Leu | Leu | Thr | Val | Ala | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Ile | Ala | Gln | Asn | Leu | Pro | Ile | Gly | Val | Ile | Leu | Ala | Gly | Val | Leu | Ile |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Leu | Tyr | Ile | Thr | Val | Val | His | Gly | Asp | Phe | Ile | Tyr | Arg | Ser | Tyr | Leu |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Thr | Leu | Asn | Arg | Asp | Leu | Thr | Gly | Leu | Ala | Leu | Ile | Ile | Glu | Val | Lys |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Ile | Asp | Leu | Trp | Trp | Arg | Leu | His | Gln | Asn | Lys | Gly | Ile | His | Glu | Leu |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |
| Phe | Leu | Asp | Ile | Val | Lys | Lys | Asn | Pro | Asn | Lys | Pro | Ala | Met | Ile | Asp |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ile | Glu | Thr | Asn | Thr | Thr | Glu | Thr | Tyr | Ala | Glu | Phe | Asn | Ala | His | Cys |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Arg | Tyr | Ala | Asn | Tyr | Phe | Gln | Gly | Leu | Gly | Tyr | Arg | Ser | Gly | Asp |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Val | Val | Ala | Leu | Tyr | Met | Glu | Asn | Ser | Val | Glu | Phe | Val | Ala | Ala | Trp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Met | Gly | Leu | Ala | Lys | Ile | Gly | Val | Val | Thr | Ala | Trp | Ile | Asn | Ser | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     | 160 |     |
| Leu | Lys | Arg | Glu | Gln | Leu | Val | His | Cys | Ile | Thr | Ala | Ser | Lys | Thr | Lys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Ile | Thr | Ser | Val | Thr | Leu | Gln | Asn | Ile | Met | Leu | Asp | Ala | Ile |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Gln | Lys | Leu | Phe | Asp | Val | Glu | Gly | Ile | Glu | Val | Tyr | Ser | Val | Gly |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Glu | Pro | Lys | Lys | Asn | Ser | Gly | Phe | Lys | Asn | Leu | Lys | Lys | Lys | Leu | Asp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Ala | Gln | Ile | Thr | Thr | Glu | Pro | Lys | Thr | Leu | Asp | Ile | Val | Asp | Phe | Lys |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Ile | Leu | Cys | Phe | Ile | Tyr | Thr | Ser | Gly | Thr | Thr | Gly | Met | Pro | Lys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Ala | Val | Met | Lys | His | Phe | Arg | Tyr | Tyr | Ser | Ile | Ala | Val | Gly | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ala | Lys | Ser | Phe | Gly | Ile | Arg | Pro | Ser | Asp | Arg | Met | Tyr | Val | Ser | Met |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Pro | Ile | Tyr | His | Thr | Ala | Ala | Gly | Ile | Leu | Gly | Val | Gly | Gln | Ala | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Leu | Gly | Gly | Ser | Ser | Cys | Val | Ile | Arg | Lys | Lys | Phe | Ser | Ala | Ser | Asn |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Phe | Trp | Arg | Asp | Cys | Val | Lys | Tyr | Asp | Cys | Thr | Val | Ser | Gln | Tyr | Ile |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu | Ala | Gln | Pro | Val | Val | Glu | Glu | Glu |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ser | Arg | His | Arg | Met | Arg | Leu | Leu | Val | Gly | Asn | Gly | Leu | Arg | Ala | Glu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ile | Trp | Gln | Pro | Phe | Val | Asp | Arg | Phe | Arg | Val | Arg | Ile | Gly | Glu | Leu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Tyr | Gly | Ser | Thr | Glu | Gly | Thr | Ser | Ser | Leu | Val | Asn | Ile | Asp | Gly | His |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Val | Gly | Ala | Cys | Gly | Phe | Leu | Pro | Ile | Ser | Pro | Leu | Thr | Lys | Lys | Met |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| His | Pro | Val | Arg | Leu | Ile | Lys | Val | Asp | Asp | Val | Thr | Gly | Glu | Ala | Ile |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Arg | Thr | Ser | Asp | Gly | Leu | Cys | Ile | Ala | Cys | Asn | Pro | Gly | Glu | Ser | Gly |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Ala | Met | Val | Ser | Thr | Ile | Arg | Lys | Asn | Asn | Pro | Leu | Leu | Gln | Phe | Glu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | Tyr | Leu | Asn | Lys | Lys | Glu | Thr | Asn | Lys | Lys | Ile | Ile | Arg | Asp | Val |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Phe | Ala | Lys | Gly | Asp | Ser | Cys | Phe | Leu | Thr | Gly | Asp | Leu | Leu | His | Trp |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Asp | Arg | Leu | Gly | Tyr | Val | Tyr | Phe | Lys | Asp | Arg | Thr | Gly | Asp | Thr | Phe |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Arg | Trp | Lys | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val | Glu | Ala | Ile | Leu |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| His | Pro | Ile | Thr | Gly |     |     |     |     |     |     |     |     |     |     |     |

Cys Lys Val Ser Leu Gly Ser Tyr Pro Phe  
645 650

<210> 80  
<211> 1968  
<212> DNA  
<213> *Caenorhabditis elegans*

<400> 80  
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aggctgcttc gcaactgattt tggagaaga gcacttgcca cgttacctag agattttgag 180  
ggactgaagc tcttaatatc ggtaagtcg acaattcgtg gcttggtcaa gaaagatcgc 240  
ccaattcatg aaatcttttt gaatcaggtg aaacagcatc caaacaaggt ggcgattatt 300  
gaaattgaaa gtggtaggca gttgacgtat caagaattga atgcgttagc taatcagtat 360  
gctaaccttt acgtgagtga aggttacaaa atgggagcag ttgtcgcttt gtttatggaa 420  
aatagcatcg acttctttgc aatttggctg ggactttcca agattggagt cgtgctggcg 480  
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aaatcatgca ttaaccaat caatctgttg ccgatgttca aagccgctcg tgaaaagaat 600  
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attaataagt cagacgttgt gtacattacg atgccaatgt atcactctgc cgccggtatc 900  
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gaaatctgca ggtatcttct ggcagcgaat ccatgtcctg aagagaaaca acacaacgtg 1080  
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tacagagatg tgttcaagca tggagataag gtgtttgcaa gtggagatat tcttcattgg 1500  
gatgatcttg gatacttgta ctttgtggac cgttgtggag acactttccg ttggaaaggg 1560  
gagaacgtgt caactactga agttgagggg attcttcagc ctgtgatgga tgtggaagat 1620  
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gacaaaatgc aacaggatat tgacactggg gtttatgatc gcatttaa 1968

<210> 81  
<211> 655  
<212> PRT  
<213> *Caenorhabditis elegans*

<400> 81  
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Val Phe Ile Gly Tyr Val Val Phe Arg Leu Leu Arg Thr Asp Phe Gly  
35 40 45  
Arg Arg Ala Leu Ala Thr Leu Pro Arg Asp Phe Ala Gly Leu Lys Leu  
50 55 60  
Leu Ile Ser Val Lys Ser Thr Ile Arg Gly Leu Phe Lys Lys Asp Arg  
65 70 75 80

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Ile | His | Glu | Ile | Phe | Leu | Asn | Gln | Val | Lys | Gln | His | Pro | Asn | Lys |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Val | Ala | Ile | Ile | Glu | Ile | Glu | Ser | Gly | Arg | Gln | Leu | Thr | Tyr | Gln | Glu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Leu | Asn | Ala | Leu | Ala | Asn | Gln | Tyr | Ala | Asn | Leu | Tyr | Val | Ser | Glu | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Lys | Met | Gly | Asp | Val | Val | Ala | Leu | Phe | Met | Glu | Asn | Ser | Ile | Asp |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Phe | Phe | Ala | Ile | Trp | Leu | Gly | Leu | Ser | Lys | Ile | Gly | Val | Val | Ser | Ala |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Phe | Ile | Asn | Ser | Asn | Leu | Lys | Leu | Glu | Pro | Leu | Ala | His | Ser | Ile | Asn |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Ser | Lys | Cys | Lys | Ser | Cys | Ile | Thr | Asn | Ile | Asn | Leu | Leu | Pro | Met |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Phe | Lys | Ala | Ala | Arg | Glu | Lys | Asn | Leu | Ile | Ser | Asp | Glu | Ile | His | Val |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Phe | Leu | Ala | Gly | Thr | Gln | Val | Asp | Gly | Arg | His | Arg | Ser | Leu | Gln | Gln |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Asp | Leu | His | Leu | Phe | Ser | Glu | Asp | Glu | Pro | Pro | Val | Ile | Asp | Gly | Leu |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |
| Asn | Phe | Arg | Ser | Val | Leu | Cys | Tyr | Ile | Tyr | Thr | Ser | Gly | Thr | Thr | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Asn | Pro | Lys | Pro | Ala | Val | Ile | Lys | His | Phe | Arg | Tyr | Phe | Trp | Ile | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Met | Gly | Ala | Gly | Lys | Ala | Phe | Gly | Ile | Asn | Lys | Ser | Asp | Val | Val | Tyr |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Ile | Thr | Met | Pro | Met | Tyr | His | Ser | Ala | Ala | Gly | Ile | Met | Gly | Ile | Gly |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Leu | Ile | Ala | Phe | Gly | Ser | Thr | Ala | Val | Ile | Arg | Lys | Lys | Phe | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ala | Ser | Asn | Phe | Trp | Lys | Asp | Cys | Val | Lys | Tyr | Asn | Val | Thr | Ala | Thr |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Gln | Tyr | Ile | Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu | Ala | Ala | Asn | Pro | Cys |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Glu | Glu | Lys | Gln | His | Asn | Val | Arg | Leu | Met | Trp | Gly | Asn | Gly | Leu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Arg | Gly | Gln | Ile | Trp | Lys | Glu | Phe | Val | Gly | Arg | Phe | Gly | Ile | Lys | Lys |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Ile | Gly | Glu | Leu | Tyr | Gly | Ser | Thr | Glu | Gly | Asn | Ser | Asn | Ile | Val | Asn |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Val | Asp | Asn | His | Val | Gly | Ala | Cys | Gly | Phe | Met | Pro | Ile | Tyr | Pro | His |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ile | Gly | Ser | Leu | Tyr | Pro | Val | Arg | Leu | Ile | Lys | Val | Asp | Arg | Ala | Thr |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Gly | Glu | Leu | Glu | Arg | Asp | Lys | Asn | Gly | Leu | Cys | Val | Pro | Cys | Val | Pro |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Gly | Glu | Thr | Gly | Glu | Met | Val | Gly | Val | Ile | Lys | Glu | Lys | Asp | Ile | Leu |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | Lys | Phe | Glu | Gly | Tyr | Val | Ser | Glu | Gly | Asp | Thr | Ala | Lys | Lys | Ile |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Tyr | Arg | Asp | Val | Phe | Lys | His | Gly | Asp | Lys | Val | Phe | Ala | Ser | Gly | Asp |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ile | Leu | His | Trp | Asp | Asp | Leu | Gly | Tyr | Leu | Tyr | Phe | Val | Asp | Arg | Cys |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Glu | Gly | Ile | Leu | Gln | Pro | Val | Met | Asp | Val | Glu | Asp | Ala | Thr | Val | Tyr |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Val | Thr | Val | Gly | Lys | Met | Glu | Gly | Arg | Ala | Gly | Met | Ala | Gly | Ile |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Val | Val | Lys | Asp | Gly | Thr | Asp | Val | Glu | Lys | Phe | Ile | Ala | Asp | Ile | Thr |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Ser | Arg | Leu | Thr | Glu | Asn | Leu | Ala | Ser | Tyr | Ala | Ile | Pro | Val | Phe | Ile |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Arg | Leu | Cys | Lys | Glu | Val | Asp | Arg | Thr | Gly | Thr | Phe | Lys | Leu | Lys | Lys |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Thr | Asp | Leu | Gln | Lys | Gln | Gly | Tyr | Asp | Leu | Val | Ala | Cys | Lys | Gly | Asp |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Pro | Ile | Tyr | Tyr | Trp | Ser | Ala | Ala | Glu | Lys | Ser | Tyr | Lys | Pro | Leu | Thr |
|     | 625 |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Asp | Lys | Met | Gln | Gln | Asp | Ile | Asp | Thr | Gly | Val | Tyr | Asp | Arg | Ile |     |
|     |     |     | 645 |     |     |     |     |     | 650 |     |     |     |     | 655 |     |

&lt;210&gt; 82

&lt;211&gt; 1932

&lt;212&gt; DNA

&lt;213&gt; Cochliobolu heterostrophus

&lt;400&gt; 82

|             |             |             |             |             |             |      |
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| atggcggtgta | tgcatacaggc | tcagctataac | aatgatctag  | aggaattgct  | aactgggtcca | 60   |
| tcagtaccca  | tcgttgctgg  | agctgctgga  | gctgcagctc  | tcactgccta  | cattaacgcc  | 120  |
| aaataccaca  | tagcccatga  | tctcaagacc  | ctcgggtggtg | gattgacaca  | atcgctccgaa | 180  |
| gcgattgatt  | tcataaaccg  | ccgcgtcgca  | caaaagcgcg  | tcctcacgca  | ccacatcttc  | 240  |
| caggagcagg  | tccaaaaaca  | atcaaatacat | ccctttctta  | tctttgaggg  | caagacatgg  | 300  |
| tcttacaagg  | agttctctga  | ggcatacacg  | agggtcgcg   | actggctgat  | tgatgagctg  | 360  |
| gacgtacaag  | taggggagat  | ggtcgcaatt  | gatggcgga   | atagtgcaga  | gcacctgatg  | 420  |
| ctttggcttg  | cacttgatgc  | aatcggtgcg  | gctacgagtt  | ttttgaactg  | gaacctgaca  | 480  |
| ggggcgagggt | taattcattg  | cataaagcta  | tgcgaatgtc  | gattcggttat | cgcagacatc  | 540  |
| gatattaaag  | cgaacattga  | accgtgccgt  | ggcgaactgg  | aggagacggg  | catcaacatt  | 600  |
| cactactatg  | acccatcctt  | catctcatcg  | ctaccgaata  | acacgccaat  | tcccagacagc | 660  |
| cgactcgaga  | acattgaatt  | agattcagta  | cgaggactga  | tatacacatc  | tggaaccact  | 720  |
| ggtctaccta  | aaggcggtgt  | tataagcaat  | ggccgcgagc  | ttaggactga  | ctggctcgatt | 780  |
| tcaaagtatc  | taaatctcaa  | gcccacggat  | cgaatgtata  | catgtatgcc  | gctctaccat  | 840  |
| gccgctgcac  | acagcctctg  | tacagcatca  | gttgaggtac  | gtggaggtac  | cgtgggtattg | 900  |
| agcaggaaat  | tctcacacaa  | gaagttcttg  | cctgaagtgt  | tggcttcgga  | agcaaataatc | 960  |
| attcagtacg  | ttggtgaatt  | aggctgatat  | ctcctgaatg  | gtccaaagag  | tccttacgac  | 1020 |
| agggcccata  | aagtccagat  | ggcgtggggc  | aatggcatgc  | gtccagacgt  | gtgggaagcg  | 1080 |
| tttcgtgaac  | gcttcaacat  | accaattatt  | catgagctct  | atgccgcaac  | cgatgggctc  | 1140 |
| gggtcaatga  | ccaatcgtaa  | cgcgggcoct  | tttacagcaa  | actgtattgc  | gctgagaggg  | 1200 |
| ctgatctggc  | actggaaatt  | tcgaaatcag  | gaagtgtctg  | tcaagatgga  | tctcgatact  | 1260 |
| gatgagatca  | tgagagatcg  | caatgggttt  | gcgatacgat  | gcgctgtcaa  | tgaacctgga  | 1320 |
| cagatgcttt  | ttcggctgac  | acccgaaact  | ctggctgggtg | caccaagcta  | ctacaacaac  | 1380 |
| gaaacggcca  | cacagagcag  | gcggattaca  | gatgtgtttc  | aaaagggtga  | cctgtggttc  | 1440 |
| aagtccggtg  | acatgctacg  | gcaagacgcc  | gaaggccgcg  | tctactttgt  | cgatcgacta  | 1500 |
| ggcgatacgt  | tccgctggaa  | atccgaaaac  | gtttctacca  | atgaagtgcg  | ggacgtgatg  | 1560 |
| ggcacatttc  | ctcagattgc  | tgaacgaat   | gtatacgggtg | tccttggtgc  | gggtaacgat  | 1620 |
| ggtcgagtgc  | gcagcctcaa  | ttgtcatggc  | agacggcggtg | acagagtcga  | cattcgcttc  | 1680 |
| gctgcccttg  | caaagcacgc  | ccgagatcgg  | ttaccgggtt  | atgctgtacc  | actgtttctg  | 1740 |
| agggtaactc  | cagcacttga  | atatacgggc  | acattaaaga  | ttcagaaagg  | acgcctcaag  | 1800 |
| caggaaggta  | tagaccaga   | taagatttcc  | ggcgaagata  | agttatactg  | gctgccgcct  | 1860 |
| ggtagcgata  | tatatattacc | atttggaag   | atggagtggc  | aggggaattgt | agataagcgt  | 1920 |
| atacggctgt  | ga          |             |             |             |             | 1932 |

&lt;210&gt; 83

&lt;211&gt; 643

&lt;212&gt; PRT

&lt;213&gt; Cochliobolu heterostrophus

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 20 25 30  
 Ala Leu Thr Ala Tyr Ile Asn Ala Lys Tyr His Ile Ala His Asp Leu  
 35 40 45  
 Lys Thr Leu Gly Gly Gly Leu Thr Gln Ser Ser Glu Ala Ile Asp Phe  
 50 55 60  
 Ile Asn Arg Arg Val Ala Gln Lys Arg Val Leu Thr His His Ile Phe  
 65 70 75 80  
 Gln Glu Gln Val Gln Lys Gln Ser Asn His Pro Phe Leu Ile Phe Glu  
 85 90 95  
 Gly Lys Thr Trp Ser Tyr Lys Glu Phe Ser Glu Ala Tyr Thr Arg Val  
 100 105 110  
 Ala Asn Trp Leu Ile Asp Glu Leu Asp Val Gln Val Gly Glu Met Val  
 115 120 125  
 Ala Ile Asp Gly Gly Asn Ser Ala Glu His Leu Met Leu Trp Leu Ala  
 130 135 140  
 Leu Asp Ala Ile Gly Ala Ala Thr Ser Phe Leu Asn Trp Asn Leu Thr  
 145 150 155 160  
 Gly Ala Gly Leu Ile His Cys Ile Lys Leu Cys Glu Cys Arg Phe Val  
 165 170 175  
 Ile Ala Asp Ile Asp Ile Lys Ala Asn Ile Glu Pro Cys Arg Gly Glu  
 180 185 190  
 Leu Glu Glu Thr Gly Ile Asn Ile His Tyr Tyr Asp Pro Ser Phe Ile  
 195 200 205  
 Ser Ser Leu Pro Asn Asn Thr Pro Ile Pro Asp Ser Arg Thr Glu Asn  
 210 215 220  
 Ile Glu Leu Asp Ser Val Arg Gly Leu Ile Tyr Thr Ser Gly Thr Thr  
 225 230 235 240  
 Gly Leu Pro Lys Gly Val Phe Ile Ser Thr Gly Arg Glu Leu Arg Thr  
 245 250 255  
 Asp Trp Ser Ile Ser Lys Tyr Leu Asn Leu Lys Pro Thr Asp Arg Met  
 260 265 270  
 Tyr Thr Cys Met Pro Leu Tyr His Ala Ala Ala His Ser Leu Cys Thr  
 275 280 285  
 Ala Ser Val Ile His Gly Gly Gly Thr Val Val Leu Ser Arg Lys Phe  
 290 295 300  
 Ser His Lys Lys Phe Trp Pro Glu Val Val Ala Ser Glu Ala Asn Ile  
 305 310 315 320  
 Ile Gln Tyr Val Gly Glu Leu Gly Arg Tyr Leu Leu Asn Gly Pro Lys  
 325 330 335  
 Ser Pro Tyr Asp Arg Ala His Lys Val Gln Met Ala Trp Gly Asn Gly  
 340 345 350  
 Met Arg Pro Asp Val Trp Glu Ala Phe Arg Glu Arg Phe Asn Ile Pro  
 355 360 365  
 Ile Ile His Glu Leu Tyr Ala Ala Thr Asp Gly Leu Gly Ser Met Thr  
 370 375 380  
 Asn Arg Asn Ala Gly Pro Phe Thr Ala Asn Cys Ile Ala Leu Arg Gly  
 385 390 395 400  
 Leu Ile Trp His Trp Lys Phe Arg Asn Gln Glu Val Leu Val Lys Met  
 405 410 415  
 Asp Leu Asp Thr Asp Glu Ile Met Arg Asp Arg Asn Gly Phe Ala Ile  
 420 425 430  
 Arg Cys Ala Val Asn Glu Pro Gly Gln Met Leu Phe Arg Leu Thr Pro  
 435 440 445  
 Glu Thr Leu Ala Gly Ala Pro Ser Tyr Tyr Asn Asn Glu Thr Ala Thr  
 450 455 460

Gln Ser Arg Arg Ile Thr Asp Val Phe Gln Lys Gly Asp Leu Trp Phe  
 465 470 475 480  
 Lys Ser Gly Asp Met Leu Arg Gln Asp Ala Glu Gly Arg Val Tyr Phe  
 485 490 495  
 Val Asp Arg Leu Gly Asp Thr Phe Arg Trp Lys Ser Glu Asn Val Ser  
 500 505 510  
 Thr Asn Glu Val Ala Asp Val Met Gly Thr Phe Pro Gln Ile Ala Glu  
 515 520 525  
 Thr Asn Val Tyr Gly Val Leu Val Pro Gly Asn Asp Gly Arg Val Arg  
 530 535 540  
 Ser Leu Asn Cys His Gly Arg Arg Arg Asp Arg Val Asp Ile Arg Phe  
 545 550 555 560  
 Ala Ala Leu Ala Lys His Ala Arg Asp Arg Leu Pro Gly Tyr Ala Val  
 565 570 575  
 Pro Leu Phe Leu Arg Val Thr Pro Ala Leu Glu Tyr Thr Gly Thr Leu  
 580 585 590  
 Lys Ile Gln Lys Gly Arg Leu Lys Gln Glu Gly Ile Asp Pro Asp Lys  
 595 600 605  
 Ile Ser Gly Glu Asp Lys Leu Tyr Trp Leu Pro Pro Gly Ser Asp Ile  
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 Ile Arg Leu

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 <212> DNA  
 <213> *Aspergillus nidulans*

<400> 84  
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 acggtcatcc agtacgtggg tgagaccttg cgatatctgc tcgccacccc cggtgaaacc 180  
 gatccagtta ctggcgaaga cctggacaaa aagcacaata ttcgagcagt atacggcaac 240  
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 gaattttatg ctgcaaccga gagcccaggc ggaacatgga actattcaac aaatgacttc 360  
 actgccggag ccattgggca cactggcggtg cttagtggat ggcttcttgg acgcggcctt 420  
 actattgtcg aggtggacca ggaatcacag gaaccatggc gcgatcccca aaccgggttc 480  
 tgcaagccgg tcccgcgagg cgaagcaggc gagctcctgt atgccattga tccggccgac 540  
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 <211> 199  
 <212> PRT  
 <213> *Aspergillus nidulans*

<400> 85  
 Leu Tyr His Ser Ser Ala Ser Phe Cys Ile Phe Ser Leu Thr Ala Ala  
 1 5 10 15  
 Gly Ser Thr Leu Ile Ile Gly Arg Lys Phe Ser Ala Arg Asn Phe Ile  
 20 25 30  
 Lys Glu Ala Arg Glu Asn Asp Ala Thr Val Ile Gln Tyr Val Gly Glu  
 35 40 45  
 Thr Leu Arg Tyr Leu Leu Ala Thr Pro Gly Glu Thr Asp Pro Val Thr  
 50 55 60  
 Gly Glu Asp Leu Asp Lys Lys His Asn Ile Arg Ala Val Tyr Gly Asn  
 65 70 75 80

Gly Leu Arg Pro Asp Ile Trp Asn Arg Phe Lys Glu Arg Phe Asn Val  
                                   85                                  90                                  95  
 Pro Thr Val Ala Glu Phe Tyr Ala Ala Thr Glu Ser Pro Gly Gly Thr  
                                   100                                  105                                  110  
 Trp Asn Tyr Ser Thr Asn Asp Phe Thr Ala Gly Ala Ile Gly His Thr  
                                   115                                  120                                  125  
 Gly Val Leu Ser Gly Trp Leu Leu Gly Arg Gly Leu Thr Ile Val Glu  
                                   130                                  135                                  140  
 Val Asp Gln Glu Ser Gln Glu Pro Trp Arg Asp Pro Gln Thr Gly Phe  
                                   145                                  150                                  155                                  160  
 Cys Lys Pro Val Pro Arg Gly Glu Ala Gly Glu Leu Leu Tyr Ala Ile  
                                   165                                  170                                  175  
 Asp Pro Ala Asp Pro Gly Glu Thr Phe Gln Gly Tyr Tyr Arg Asn Ser  
                                   180                                  185                                  190  
 Phe Arg Ala His Trp Arg Pro  
                                   195

<210> 86  
 <211> 522  
 <212> DNA  
 <213> Magnaporthe grisea

<220>  
 <221> misc\_feature  
 <222> (1)...(522)  
 <223> n = A,T,C or G

<400> 86  
 gcaaaggccg acgcgtggct gcggacgggt aacgtgatca gggcggacaa cgaagggcga 60  
 ctcttcttcc acgaccgat cggagacacg ttccgatgga agggagagac ngtcagcaca 120  
 caagagggtca gtttggtgct cggacgacac gactcaatca aggaggccaa cgtgtacggc 180  
 gtgacgggtgc cgaaccacga cgggccccgc ggctgcgctg cgctcacgct atcagacgct 240  
 ctggcgactg aaaagaagct gggcgatgag ctgctaaagg gattggctac tcactcgtcg 300  
 acttcgcttc ccaagtttgc ggtgccgcag ttcttacggg tggcgcgcg cgagatgcag 360  
 tcaacgggca ccaacaagca acagaagcac gacctgaggg tgcagggtgt agagccgggc 420  
 aaggtgggag tagacgaggt gtactggttg cggggaggga catatgtacc attcggaaca 480  
 gaggattggg atggggtgaa gaagggtcct gtgaagttgt ga 522

<210> 87  
 <211> 173  
 <212> PRT  
 <213> Magnaporthe grisea

<400> 87  
 Ala Lys Ala Asp Ala Trp Leu Arg Thr Gly Asn Val Ile Arg Ala Asp  
   1                                  5                                  10                                  15  
 Asn Glu Gly Arg Leu Phe Phe His Asp Arg Ile Gly Asp Thr Phe Arg  
                                   20                                  25                                  30  
 Trp Lys Gly Glu Thr Val Ser Thr Gln Glu Val Ser Leu Val Leu Gly  
                                   35                                  40                                  45  
 Arg His Asp Ser Ile Lys Glu Ala Asn Val Tyr Gly Val Thr Val Pro  
                                   50                                  55                                  60  
 Asn His Asp Gly Arg Ala Gly Cys Ala Ala Leu Thr Leu Ser Asp Ala  
   65                                  70                                  75                                  80  
 Leu Ala Thr Glu Lys Lys Leu Gly Asp Glu Leu Leu Lys Gly Leu Ala  
                                   85                                  90                                  95  
 Thr His Ser Ser Thr Ser Leu Pro Lys Phe Ala Val Pro Gln Phe Leu  
                                   100                                  105                                  110

Arg Val Val Arg Gly Glu Met Gln Ser Thr Gly Thr Asn Lys Gln Gln  
 115 120 125  
 Lys His Asp Leu Arg Val Gln Gly Val Glu Pro Gly Lys Val Gly Val  
 130 135 140  
 Asp Glu Val Tyr Trp Leu Arg Gly Gly Thr Tyr Val Pro Phe Gly Thr  
 145 150 155 160  
 Glu Asp Trp Asp Gly Leu Lys Lys Gly Leu Val Lys Leu  
 165 170

<210> 88  
 <211> 1872  
 <212> DNA  
 <213> *Saccharomyces cerevisiae*

<400> 88  
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 cttatcaagc taattataac ccctatccag aaatcactgg gttatctatt tggtaattat 120  
 tttgatgaat tagaccgtaa atatagatac aaggaggatt ggtatattat tccttacttt 180  
 ttgaaaagcg tgttttgtaa tatcattgat gtgagaagac atagggttca aaactggtag 240  
 ttattttatta aacaggtcca acaaaatggg gaccatttag cgattagtta caccctgccc 300  
 atggccgaaa agggagaatt tcaactcgaa acctttacgt atattgaaac ttataacata 360  
 gtgttgagat tgtctcatat tttgcatttt gattataacg ttcaggccgg tgactacgtg 420  
 gcaatcgatt gtactaataa acctcttttc gtatttttat ggctttcttt gtggaacatt 480  
 ggggctattc cagctttttt aaactataat actaaaggca ctccgctggg tcaactcccta 540  
 aagattttcca atattacgca ggtattttat gaccctgatg ccagtaatcc gatcagagaa 600  
 tcggaagaag aaatcaaaaa cgcacttccg gatgttaaata taaactatct tgaagaacaa 660  
 gacttaatgc atgaactttt aaattcgcaa tcaccggaat tcttacaaca agacaacggt 720  
 aggacaccac taggcttgac cgatttttaa ccctctatgt taattttatac atctggaacc 780  
 actggtttgc ctaaactcgc tattatgtct tggagaaaat cctccgtagg ttgtcaagtt 840  
 tttggtcatg ttttacatat gactaatgaa agcactgtgt tcacagccat gccattgttc 900  
 cattcaactg ctgccttatt aggtgcgtgc gccattctat ctacaggtgg ttgccttgcg 960  
 ttatcgcata aattttctgc cagtacattt tgggaagcaag tttattttaac aggagccacg 1020  
 cacatccaat atgtcggaga agtctgtaga tacctgttac atacgccaat ttctaagtat 1080  
 gaaaagatgc ataaggtgaa ggttgcttat ggtaacgggc tgagacctga catctggcag 1140  
 gacttcagga agaggttcaa catagaagtt attggtgaat tctatgccgc aactgaagct 1200  
 ccttttgcta caactacctt ccagaaaggt gactttggaa ttggcgcgat taggaactat 1260  
 ggtactataa ttcaatgggt tttgtcattc caacaaacat tggttaaggat ggacccaaat 1320  
 gacgattccg ttatatatag aaattccaag ggtttctgcg aagtggcccc tgttggcgaa 1380  
 ccaggagaaa tgttaatgag aatctttttc cctaaaaaac cagaaacatc ttttcaaggt 1440  
 tatcttggtg atgccaagga aacaaagtc aaagttgtga gggatgtctt cagacgtggc 1500  
 gatgcttggt atagatgtgg agatttatta aaagcggacg aatatggatt atggtatttc 1560  
 cttgatagaa tgggtgatac tttcagatgg aaatctgaaa atgtttccac tactgaagta 1620  
 gaagatcagt tgacggccag taacaaagaa caatatgcac aagttctagt tgttgggtatt 1680  
 aaagtaccta aatatgaagg tagagctggg tttgcagtta ttaaactaac tgacaactct 1740  
 cttgacatca ctgcaaagac caaattatta aatgattcct tgagccgggt aaatctaccg 1800  
 tcttatgcta tgcccctatt tgttaaattt gttgatgaaa ttaaaatgac agataacctc 1860  
 ataaaaattt ga 1872

<210> 89  
 <211> 623  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 89  
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 Leu Leu Phe Arg Leu Ile Lys Leu Ile Ile Thr Pro Ile Gln Lys Ser  
 20 25 30

Leu Gly Tyr Leu Phe Gly Asn Tyr Phe Asp Glu Leu Asp Arg Lys Tyr  
 35 40 45  
 Arg Tyr Lys Glu Asp Trp Tyr Ile Ile Pro Tyr Phe Leu Lys Ser Val  
 50 55 60  
 Phe Cys Tyr Ile Ile Asp Val Arg Arg His Arg Phe Gln Asn Trp Tyr  
 65 70 75 80  
 Leu Phe Ile Lys Gln Val Gln Gln Asn Gly Asp His Leu Ala Ile Ser  
 85 90 95  
 Tyr Thr Arg Pro Met Ala Glu Lys Gly Glu Phe Gln Leu Glu Thr Phe  
 100 105 110  
 Thr Tyr Ile Glu Thr Tyr Asn Ile Val Leu Arg Leu Ser His Ile Leu  
 115 120 125  
 His Phe Asp Tyr Asn Val Gln Ala Gly Asp Tyr Val Ala Ile Asp Cys  
 130 135 140  
 Thr Asn Lys Pro Leu Phe Val Phe Leu Trp Leu Ser Leu Trp Asn Ile  
 145 150 155 160  
 Gly Ala Ile Pro Ala Phe Leu Asn Tyr Asn Thr Lys Gly Thr Pro Leu  
 165 170 175  
 Val His Ser Leu Lys Ile Ser Asn Ile Thr Gln Val Phe Ile Asp Pro  
 180 185 190  
 Asp Ala Ser Asn Pro Ile Arg Glu Ser Glu Glu Glu Ile Lys Asn Ala  
 195 200 205  
 Leu Pro Asp Val Lys Leu Asn Tyr Leu Glu Glu Gln Asp Leu Met His  
 210 215 220  
 Glu Leu Leu Asn Ser Gln Ser Pro Glu Phe Leu Gln Gln Asp Asn Val  
 225 230 235 240  
 Arg Thr Pro Leu Gly Leu Thr Asp Phe Lys Pro Ser Met Leu Ile Tyr  
 245 250 255  
 Thr Ser Gly Thr Thr Gly Leu Pro Lys Ser Ala Ile Met Ser Trp Arg  
 260 265 270  
 Lys Ser Ser Val Gly Cys Gln Val Phe Gly His Val Leu His Met Thr  
 275 280 285  
 Asn Glu Ser Thr Val Phe Thr Ala Met Pro Leu Phe His Ser Thr Ala  
 290 295 300  
 Ala Leu Leu Gly Ala Cys Ala Ile Leu Ser His Gly Gly Cys Leu Ala  
 305 310 315 320  
 Leu Ser His Lys Phe Ser Ala Ser Thr Phe Trp Lys Gln Val Tyr Leu  
 325 330 335  
 Thr Gly Ala Thr His Ile Gln Tyr Val Gly Glu Val Cys Arg Tyr Leu  
 340 345 350  
 Leu His Thr Pro Ile Ser Lys Tyr Glu Lys Met His Lys Val Lys Val  
 355 360 365  
 Ala Tyr Gly Asn Gly Leu Arg Pro Asp Ile Trp Gln Asp Phe Arg Lys  
 370 375 380  
 Arg Phe Asn Ile Glu Val Ile Gly Glu Phe Tyr Ala Ala Thr Glu Ala  
 385 390 395 400  
 Pro Phe Ala Thr Thr Phe Gln Lys Gly Asp Phe Gly Ile Gly Ala  
 405 410 415  
 Cys Arg Asn Tyr Gly Thr Ile Ile Gln Trp Phe Leu Ser Phe Gln Gln  
 420 425 430  
 Thr Leu Val Arg Met Asp Pro Asn Asp Asp Ser Val Ile Tyr Arg Asn  
 435 440 445  
 Ser Lys Gly Phe Cys Glu Val Ala Pro Val Gly Glu Pro Gly Glu Met  
 450 455 460  
 Leu Met Arg Ile Phe Phe Pro Lys Lys Pro Glu Thr Ser Phe Gln Gly  
 465 470 475 480  
 Tyr Leu Gly Asn Ala Lys Glu Thr Lys Ser Lys Val Val Arg Asp Val  
 485 490 495

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Arg | Arg | Gly | Asp | Ala | Trp | Tyr | Arg | Cys | Gly | Asp | Leu | Leu | Lys | Ala |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Asp | Glu | Tyr | Gly | Leu | Trp | Tyr | Phe | Leu | Asp | Arg | Met | Gly | Asp | Thr | Phe |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Arg | Trp | Lys | Ser | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val | Glu | Asp | Gln | Leu |
|     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |
| Thr | Ala | Ser | Asn | Lys | Glu | Gln | Tyr | Ala | Gln | Val | Leu | Val | Val | Gly | Ile |
|     |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Lys | Val | Pro | Lys | Tyr | Glu | Gly | Arg | Ala | Gly | Phe | Ala | Val | Ile | Lys | Leu |
|     |     |     |     |     | 565 |     |     |     | 570 |     |     |     |     |     | 575 |
| Thr | Asp | Asn | Ser | Leu | Asp | Ile | Thr | Ala | Lys | Thr | Lys | Leu | Leu | Asn | Asp |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Ser | Leu | Ser | Arg | Leu | Asn | Leu | Pro | Ser | Tyr | Ala | Met | Pro | Leu | Phe | Val |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Lys | Phe | Val | Asp | Glu | Ile | Lys | Met | Thr | Asp | Asn | Leu | Ile | Lys | Phe |     |
|     |     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |

&lt;210&gt; 90

&lt;211&gt; 1794

&lt;212&gt; DNA

&lt;213&gt; Mycobacterium tuberculosis

&lt;400&gt; 90

|            |            |             |             |            |             |      |
|------------|------------|-------------|-------------|------------|-------------|------|
| gtgtccgatt | actacggcgg | cgcacacaca  | acggtcaggc  | tgatcgacct | ggcaactcgg  | 60   |
| atgccgcgag | tggtggcgga | cacgccgggtg | attgtgcgtg  | gggcaatgac | cgggctgctg  | 120  |
| gccccggcca | attccaaggc | gtcgatcggc  | acgggtgttcc | aggaccgggc | cgctcgctac  | 180  |
| ggtgaccgag | tcttcctgaa | attcggcgat  | cagcagctga  | cctaccgcga | cgctaaccgc  | 240  |
| accgccaacc | ggtagccgcg | ggtggtggcc  | gcccgcggcg  | tcggccccgg | cgacgtcgtt  | 300  |
| ggcatcatgt | tgcgtaactc | acccagcaca  | gtcttgggcg  | tgctggccac | ggtcaagtgc  | 360  |
| ggcgctatcg | ccggcatgct | caactaccac  | cagcgcggcg  | aggtgttggc | gcacagcctg  | 420  |
| ggtctgctgg | acgcgaaggt | actgatcgca  | gagtcgact   | tggtcagcgc | cgtcgcccga  | 480  |
| tgcgggcgct | cgcgcgggcg | ggtagcgggc  | gacgtgctga  | ccgtcgagga | cgtaggagca  | 540  |
| ttcgccacaa | cggcgcccgc | caccaaccgc  | gcgtcggcgt  | cggcggtgca | agccaaagac  | 600  |
| accgcgttct | acatcttcac | ctcgggcacc  | accgatttc   | ccaaggccag | tgatcatgac  | 660  |
| catcatcggt | ggctgcgggc | gctggccgct  | ttcggaggga  | tggggctgcg | gctgaagggt  | 720  |
| tccgacacgc | tctacagctg | cctgccgctg  | taccacaaca  | acgcgttaac | ggtcgcgggtg | 780  |
| tcgtcggtga | tcaattctgg | ggcgaccctg  | gcgctgggta  | agtcgttttc | ggcgtcgcgg  | 840  |
| ttctgggatg | aggtgattgc | caaccggggc  | acggcggttc  | tctacatcgg | cgaaatctgc  | 900  |
| cgttatctgc | tcaaccagcc | ggccaagccg  | accgaccgtg  | cccaccaggt | gcgggtgatc  | 960  |
| tgcggtaacg | ggctgcggcc | ggagatctgg  | gatgagttca  | ccaccgcgtt | cggggtcgcg  | 1020 |
| cgggtgtgcg | agttctacgc | cgccagcgaa  | ggcaactcgg  | cctttatcaa | catcttcaac  | 1080 |
| gtgcccagga | ccgccggggg | atcgccgatg  | ccgcttgcc   | ttgtggaata | cgacctggac  | 1140 |
| accggcgatc | cgctgcggga | tgcgagcggg  | cgagtgcgtc  | gggtaccgga | cgtgaaccc   | 1200 |
| ggcctgttgc | ttagccgggt | caaccggctg  | cagccgttcg  | acggctacac | cgaccgggtt  | 1260 |
| gccagcgaaa | agaagtgtgt | gcgcaacgct  | tttcgagatg  | gcgactgttg | gttcaacacc  | 1320 |
| ggtgacgtga | tgagcccgcg | gggcatgggc  | catgccgctt  | tcgtcgatcg | gctgggagac  | 1380 |
| accttccgct | ggaagggcga | gaatgtcgcc  | accactcagg  | tcgaagcggc | actggcctcc  | 1440 |
| gaccagaccg | tcgaggagtg | cacggtctac  | ggcgctccaga | ttccgcgcac | cggcgggcgc  | 1500 |
| gccggaatgg | ccgcgatcac | actgcgcgct  | ggcgccgaat  | tcgacggcca | ggcgctggcc  | 1560 |
| cgaacggttt | acggtcactt | gcccggctat  | gcacttccgc  | tctttgttcg | ggtagtgggg  | 1620 |
| tcgctggcgc | acaccacgac | gttcaagagt  | cgcaaggtgc  | agttgcgcaa | ccaggcctat  | 1680 |
| ggcgccgaca | tcgaggatcc | gctgtacgta  | ctggccggcc  | cggacgaagg | atatgtgccg  | 1740 |
| tactacgccg | aataccctga | ggaggtttcg  | ctcggaaggc  | gaccgcaggg | ctag        | 1794 |

&lt;210&gt; 91

&lt;211&gt; 597

&lt;212&gt; PRT

&lt;213&gt; Mycobacterium tuberculosis

<400> 91

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Asp | Tyr |     | Gly | Gly | Ala | His | Thr | Thr | Val | Arg | Leu | Ile | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ala | Thr | Arg | Met | Pro | Arg | Val | Leu | Ala | Asp | Thr | Pro | Val | Ile | Val |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Arg | Gly | Ala | Met | Thr | Gly | Leu | Leu | Ala | Arg | Pro | Asn | Ser | Lys | Ala | Ser |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Gly | Thr | Val | Phe | Gln | Asp | Arg | Ala | Ala | Arg | Tyr | Gly | Asp | Arg | Val |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Phe | Leu | Lys | Phe | Gly | Asp | Gln | Gln | Leu | Thr | Tyr | Arg | Asp | Ala | Asn | Ala |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     | 80  |     |
| Thr | Ala | Asn | Arg | Tyr | Ala | Ala | Val | Leu | Ala | Ala | Arg | Gly | Val | Gly | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Asp | Val | Val | Gly | Ile | Met | Leu | Arg | Asn | Ser | Pro | Ser | Thr | Val | Leu |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Met | Leu | Ala | Thr | Val | Lys | Cys | Gly | Ala | Ile | Ala | Gly | Met | Leu | Asn |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | His | Gln | Arg | Gly | Glu | Val | Leu | Ala | His | Ser | Leu | Gly | Leu | Leu | Asp |
|     | 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |
| Ala | Lys | Val | Leu | Ile | Ala | Glu | Ser | Asp | Leu | Val | Ser | Ala | Val | Ala | Glu |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Cys | Gly | Ala | Ser | Arg | Gly | Arg | Val | Ala | Gly | Asp | Val | Leu | Thr | Val | Glu |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asp | Val | Glu | Arg | Phe | Ala | Thr | Thr | Ala | Pro | Ala | Thr | Asn | Pro | Ala | Ser |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Ala | Ser | Ala | Val | Gln | Ala | Lys | Asp | Thr | Ala | Phe | Tyr | Ile | Phe | Thr | Ser |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Gly | Thr | Thr | Gly | Phe | Pro | Lys | Ala | Ser | Val | Met | Thr | His | His | Arg | Trp |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Arg | Ala | Leu | Ala | Val | Phe | Gly | Gly | Met | Gly | Leu | Arg | Leu | Lys | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Asp | Thr | Leu | Tyr | Ser | Cys | Leu | Pro | Leu | Tyr | His | Asn | Asn | Ala | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Thr | Val | Ala | Val | Ser | Ser | Val | Ile | Asn | Ser | Gly | Ala | Thr | Leu | Ala | Leu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Lys | Ser | Phe | Ser | Ala | Ser | Arg | Phe | Trp | Asp | Glu | Val | Ile | Ala | Asn |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Arg | Ala | Thr | Ala | Phe | Val | Tyr | Ile | Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asn | Gln | Pro | Ala | Lys | Pro | Thr | Asp | Arg | Ala | His | Gln | Val | Arg | Val | Ile |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Cys | Gly | Asn | Gly | Leu | Arg | Pro | Glu | Ile | Trp | Asp | Glu | Phe | Thr | Thr | Arg |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Phe | Gly | Val | Ala | Arg | Val | Cys | Glu | Phe | Tyr | Ala | Ala | Ser | Glu | Gly | Asn |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ser | Ala | Phe | Ile | Asn | Ile | Phe | Asn | Val | Pro | Arg | Thr | Ala | Gly | Val | Ser |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Pro | Met | Pro | Leu | Ala | Phe | Val | Glu | Tyr | Asp | Leu | Asp | Thr | Gly | Asp | Pro |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Leu | Arg | Asp | Ala | Ser | Gly | Arg | Val | Arg | Arg | Val | Pro | Asp | Gly | Glu | Pro |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gly | Leu | Leu | Leu | Ser | Arg | Val | Asn | Arg | Leu | Gln | Pro | Phe | Asp | Gly | Tyr |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Thr | Asp | Pro | Val | Ala | Ser | Glu | Lys | Lys | Leu | Val | Arg | Asn | Ala | Phe | Arg |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Asp | Gly | Asp | Cys | Trp | Phe | Asn | Thr | Gly | Asp | Val | Met | Ser | Pro | Gln | Gly |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Met | Gly | His | Ala | Ala | Phe | Val | Asp | Arg | Leu | Gly | Asp | Thr | Phe | Arg | Trp |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |



Lys Gly Glu Asn Val Ala Thr Thr Gln Val Glu Ala Ala Leu Ala Ser  
 465 470 475 480  
 Asp Gln Thr Val Glu Glu Cys Thr Val Tyr Gly Val Gln Ile Pro Arg  
 485 490 495  
 Thr Gly Gly Arg Ala Gly Met Ala Ala Ile Thr Leu Arg Ala Gly Ala  
 500 505 510  
 Glu Phe Asp Gly Gln Ala Leu Ala Arg Thr Val Tyr Gly His Leu Pro  
 515 520 525  
 Gly Tyr Ala Leu Pro Leu Phe Val Arg Val Val Gly Ser Leu Ala His  
 530 535 540  
 Thr Thr Thr Phe Lys Ser Arg Lys Val Glu Leu Arg Asn Gln Ala Tyr  
 545 550 555 560  
 Gly Ala Asp Ile Glu Asp Pro Leu Tyr Val Leu Ala Gly Pro Asp Glu  
 565 570 575  
 Gly Tyr Val Pro Tyr Tyr Ala Glu Tyr Pro Glu Glu Val Ser Leu Gly  
 580 585 590  
 Arg Arg Pro Gln Gly  
 595

<210> 92  
 <211> 646  
 <212> PRT  
 <213> Mus musculus

<400> 92  
 Met Arg Ala Pro Gly Ala Gly Thr Ala Ser Val Ala Ser Leu Ala Leu  
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 Leu Trp Phe Leu Gly Leu Pro Trp Thr Trp Ser Ala Ala Ala Ala Phe  
 20 25 30  
 Cys Val Tyr Val Gly Gly Gly Gly Trp Arg Phe Leu Arg Ile Val Cys  
 35 40 45  
 Lys Thr Ala Arg Arg Asp Leu Phe Gly Leu Ser Val Leu Ile Arg Val  
 50 55 60  
 Arg Leu Glu Leu Arg Arg His Arg Arg Ala Gly Asp Thr Ile Pro Cys  
 65 70 75 80  
 Ile Phe Gln Ala Val Ala Arg Arg Gln Pro Glu Arg Leu Ala Leu Val  
 85 90 95  
 Asp Ala Ser Ser Gly Ile Cys Trp Thr Phe Ala Gln Leu Asp Thr Tyr  
 100 105 110  
 Ser Asn Ala Val Ala Asn Leu Phe Arg Gln Leu Gly Phe Ala Pro Gly  
 115 120 125  
 Asp Val Val Ala Val Phe Leu Glu Gly Arg Pro Glu Phe Val Gly Leu  
 130 135 140  
 Trp Leu Gly Leu Ala Lys Ala Gly Val Val Ala Ala Leu Leu Asn Val  
 145 150 155 160  
 Asn Leu Arg Arg Glu Pro Leu Ala Phe Cys Leu Gly Thr Ser Ala Ala  
 165 170 175  
 Lys Ala Leu Ile Tyr Gly Gly Glu Met Ala Ala Ala Val Ala Glu Val  
 180 185 190  
 Ser Glu Gln Leu Gly Lys Ser Leu Leu Lys Phe Cys Ser Gly Asp Leu  
 195 200 205  
 Gly Pro Glu Ser Ile Leu Pro Asp Thr Gln Leu Leu Asp Pro Met Leu  
 210 215 220  
 Ala Glu Ala Pro Thr Thr Pro Leu Ala Gln Ala Pro Gly Lys Gly Met  
 225 230 235 240  
 Asp Asp Arg Leu Phe Tyr Ile Tyr Thr Ser Gly Thr Thr Gly Leu Pro  
 245 250 255  
 Lys Ala Ala Ile Val Val His Ser Arg Tyr Tyr Arg Ile Ala Ala Phe  
 260 265 270

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | His | His | Ser | Tyr | Ser | Met | Arg | Ala | Ala | Asp | Val | Leu | Tyr | Asp | Cys |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Leu | Pro | Leu | Tyr | His | Ser | Ala | Gly | Asn | Ile | Met | Gly | Val | Gly | Gln | Cys |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Val | Ile | Tyr | Gly | Leu | Thr | Val | Val | Leu | Arg | Lys | Lys | Phe | Ser | Ala | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Arg | Phe | Trp | Asp | Asp | Cys | Val | Lys | Tyr | Asn | Cys | Thr | Val | Val | Gln | Tyr |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ile | Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu | Arg | Gln | Pro | Val | Arg | Asp | Val |
|     |     |     | 340 |     |     |     | 345 |     |     |     |     | 350 |     |     |     |
| Glu | Gln | Arg | His | Arg | Val | Arg | Leu | Ala | Val | Gly | Asn | Gly | Leu | Arg | Pro |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ala | Ile | Trp | Glu | Glu | Phe | Thr | Gln | Arg | Phe | Gly | Val | Pro | Gln | Ile | Gly |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Phe | Tyr | Gly | Ala | Thr | Glu | Cys | Asn | Cys | Ser | Ile | Ala | Asn | Met | Asp |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gly | Lys | Val | Gly | Ser | Cys | Gly | Phe | Asn | Ser | Arg | Ile | Leu | Thr | His | Val |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Tyr | Pro | Ile | Arg | Leu | Val | Lys | Val | Asn | Glu | Asp | Thr | Met | Glu | Pro | Leu |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Arg | Asp | Ser | Glu | Gly | Leu | Cys | Ile | Pro | Cys | Gln | Pro | Gly | Glu | Pro | Gly |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Leu | Leu | Val | Gly | Gln | Ile | Asn | Gln | Gln | Asp | Pro | Leu | Arg | Arg | Phe | Asp |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Gly | Tyr | Val | Ser | Asp | Ser | Ala | Thr | Asn | Lys | Lys | Ile | Ala | His | Ser | Val |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Phe | Arg | Lys | Gly | Asp | Ser | Ala | Tyr | Leu | Ser | Gly | Asp | Val | Leu | Val | Met |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Asp | Glu | Leu | Gly | Tyr | Met | Tyr | Phe | Arg | Asp | Arg | Ser | Gly | Asp | Thr | Phe |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Arg | Trp | Arg | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val | Glu | Ala | Val | Leu |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Ser | Arg | Leu | Leu | Gly | Gln | Thr | Asp | Val | Ala | Val | Tyr | Gly | Val | Ala | Val |
|     | 530 |     |     |     |     | 535 |     |     |     |     |     | 540 |     |     |     |
| Pro | Gly | Val | Glu | Gly | Lys | Ala | Gly | Met | Ala | Ala | Ile | Ala | Asp | Pro | His |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Ser | Gln | Leu | Asp | Pro | Asn | Ser | Met | Tyr | Gln | Glu | Leu | Gln | Lys | Val | Leu |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Ala | Ser | Tyr | Ala | Arg | Pro | Ile | Phe | Leu | Arg | Leu | Leu | Pro | Gln | Val | Asp |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Thr | Thr | Gly | Thr | Phe | Lys | Ile | Gln | Lys | Thr | Arg | Leu | Gln | Arg | Glu | Gly |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Phe | Asp | Pro | Arg | Gln | Thr | Ser | Asp | Arg | Leu | Phe | Phe | Leu | Asp | Leu | Lys |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Gln | Gly | Arg | Tyr | Leu | Pro | Leu | Asp | Glu | Arg | Val | His | Ala | Arg | Ile | Cys |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Ala | Gly | Asp | Phe | Ser | Leu |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 645 |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 93

&lt;211&gt; 620

&lt;212&gt; PRT

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; VARIANT

&lt;222&gt; (1)...(620)

&lt;223&gt; Xaa = Any Amino Acid

<400> 93

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Pro | Val | Leu | Tyr | Thr | Gly | Leu | Ala | Gly | Leu | Leu | Leu | Leu | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Leu | Leu | Thr | Cys | Cys | Cys | Pro | Tyr | Leu | Leu | Gln | Asp | Val | Arg | Tyr |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Phe | Leu | Arg | Leu | Ala | Asn | Met | Ala | Arg | Arg | Val | Arg | Ser | Tyr | Arg | Gln |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Arg | Pro | Val | Arg | Thr | Ile | Leu | Arg | Ala | Phe | Leu | Glu | Gln | Ala | Arg |
|     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Lys | Thr | Pro | His | Lys | Pro | Phe | Leu | Leu | Phe | Arg | Asp | Glu | Thr | Leu | Thr |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Tyr | Ala | Gln | Val | Asp | Arg | Arg | Ser | Asn | Gln | Val | Ala | Arg | Ala | Leu | His |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Gln | Leu | Gly | Leu | Arg | Gln | Gly | Asp | Cys | Val | Ala | Leu | Phe | Met | Gly |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Asn | Glu | Pro | Ala | Tyr | Val | Trp | Ile | Trp | Leu | Gly | Leu | Leu | Lys | Leu | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Cys | Pro | Met | Ala | Cys | Leu | Asn | Tyr | Asn | Ile | Arg | Ala | Lys | Ser | Leu | Leu |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| His | Cys | Phe | Gln | Cys | Cys | Gly | Ala | Lys | Val | Leu | Leu | Ala | Ser | Pro | Asp |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Leu | Gln | Glu | Ala | Val | Glu | Glu | Val | Leu | Pro | Thr | Leu | Lys | Lys | Asp | Ala |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Ser | Val | Phe | Tyr | Val | Ser | Arg | Thr | Ser | Asn | Thr | Asn | Gly | Val | Asp |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Thr | Ile | Leu | Asp | Lys | Val | Asp | Gly | Val | Ser | Ala | Glu | Pro | Thr | Pro | Glu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ser | Trp | Arg | Ser | Glu | Val | Thr | Phe | Thr | Thr | Pro | Ala | Val | Tyr | Ile | Tyr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | Lys | Ala | Ala | Thr | Ile | Asn | His | His |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Leu | Arg | Tyr | Gly | Thr | Gly | Leu | Ala | Met | Ser | Ser | Gly | Ile | Thr | Ala |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gln | Asp | Val | Ile | Tyr | Thr | Thr | Met | Pro | Leu | Tyr | His | Ser | Ala | Ala | Leu |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Met | Ile | Gly | Leu | His | Gly | Cys | Ile | Val | Val | Gly | Ala | Xaa | Xaa | Xaa | Leu |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Cys | Asp | Lys | Phe | Ser | Ala | Ser | Gln | Phe | Trp | Asp | Asp | Cys | Arg | Lys | Tyr |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Asn | Val | Thr | Val | Ile | Gln | Tyr | Ile | Gly | Glu | Leu | Leu | Arg | Tyr | Leu | Cys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Asn | Thr | Pro | Gln | Lys | Pro | Asn | Asp | Arg | Asp | His | Lys | Val | Lys | Lys | Ala |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Gly | Asn | Gly | Leu | Arg | Gly | Asp | Val | Trp | Arg | Glu | Phe | Ile | Lys | Arg |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Phe | Gly | Asp | Ile | His | Val | Tyr | Glu | Phe | Tyr | Ala | Ser | Thr | Glu | Gly | Asn |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Ile | Gly | Phe | Val | Asn | Tyr | Pro | Arg | Lys | Ile | Gly | Ala | Val | Gly | Arg | Ala |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asn | Tyr | Leu | Gln | Arg | Lys | Val | Ala | Arg | Tyr | Glu | Leu | Ile | Lys | Tyr | Asp |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Val | Glu | Lys | Asp | Glu | Pro | Val | Arg | Asp | Ala | Asn | Gly | Tyr | Cys | Ile | Lys |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Val | Pro | Lys | Gly | Glu | Val | Gly | Leu | Leu | Val | Cys | Lys | Ile | Thr | Gln | Leu |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Thr | Pro | Phe | Ile | Gly | Tyr | Ala | Gly | Gly | Lys | Thr | Gln | Thr | Glu | Lys | Lys |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Lys | Leu | Arg | Asp | Val | Phe | Lys | Lys | Gly | Asp | Ile | Tyr | Phe | Asn | Ser | Gly |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Leu | Leu | Met | Ile | Asp | Arg | Glu | Asn | Phe | Val | Tyr | Phe | His | Asp | Arg |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Val | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val | Ala | Thr | Thr | Glu |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |
| Val | Ala | Asp | Ile | Val | Gly | Leu | Val | Asp | Phe | Val | Glu | Glu | Val | Asn | Val |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |
| Tyr | Gly | Val | Pro | Val | Pro | Gly | His | Glu | Gly | Arg | Ile | Gly | Met | Ala | Ser |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Leu | Lys | Ile | Lys | Glu | Asn | Tyr | Glu | Phe | Asn | Gly | Lys | Lys | Leu | Phe | Gln |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| His | Ile | Ala | Glu | Tyr | Leu | Pro | Ser | Tyr | Ala | Arg | Pro | Arg | Phe | Leu | Arg |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Ile | Gln | Asp | Thr | Ile | Glu | Ile | Thr | Gly | Thr | Phe | Lys | His | Arg | Lys | Val |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |
| Thr | Leu | Met | Glu | Glu | Gly | Phe | Asn | Pro | Thr | Val | Ile | Lys | Asp | Thr | Leu |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Tyr | Phe | Met | Asp | Asp | Ala | Glu | Lys | Thr | Phe | Val | Pro | Met | Thr | Glu | Asn |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Ile | Tyr | Asn | Ala | Ile | Ile | Asp | Lys | Thr | Leu | Lys | Leu |     |     |     |     |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |

<210> 94  
 <211> 613  
 <212> PRT  
 <213> Mus musculus

<400> 94

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ala | Asp | Pro | Glu | Ser | Ser | Glu | Ser | Gly | Cys | Ser | Leu | Ala | Trp | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Ala | Tyr | Leu | Ala | Arg | Glu | Gln | Pro | Thr | His | Thr | Phe | Leu | Ile | His |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Gly | Ala | Gln | Arg | Phe | Ser | Tyr | Ala | Glu | Ala | Glu | Arg | Glu | Ser | Asn | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Ile | Ala | Arg | Ala | Phe | Leu | Arg | Ala | Arg | Gly | Trp | Thr | Gly | Gly | Arg | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Gly | Ser | Gly | Arg | Gly | Ser | Thr | Glu | Glu | Gly | Ala | Arg | Val | Ala | Pro | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Ala | Gly | Asp | Ala | Ala | Ala | Arg | Gly | Thr | Thr | Ala | Pro | Pro | Leu | Ala | Pro |
|     |     |     | 85  |     |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Gly | Ala | Thr | Val | Ala | Leu | Leu | Leu | Pro | Ala | Gly | Pro | Asp | Phe | Leu | Trp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ile | Trp | Phe | Gly | Leu | Ala | Lys | Ala | Gly | Leu | Arg | Thr | Ala | Phe | Val | Pro |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Thr | Ala | Leu | Arg | Arg | Gly | Pro | Leu | Leu | His | Cys | Leu | Arg | Ser | Cys | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     |     | 140 |     |     |     |
| Ala | Ser | Ala | Leu | Val | Leu | Ala | Thr | Glu | Phe | Leu | Glu | Ser | Leu | Glu | Pro |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Asp | Leu | Pro | Ala | Leu | Arg | Ala | Met | Gly | Leu | His | Leu | Trp | Ala | Thr | Gly |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Glu | Thr | Asn | Val | Ala | Gly | Ile | Ser | Asn | Leu | Leu | Ser | Glu | Ala | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asp | Gln | Val | Asp | Glu | Pro | Val | Pro | Gly | Tyr | Leu | Ser | Ala | Pro | Gln | Asn |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Ile | Met | Asp | Thr | Cys | Leu | Tyr | Ile | Phe | Thr | Ser | Gly | Thr | Thr | Gly | Leu |
|     | 210 |     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     |
| Pro | Lys | Ala | Ala | Arg | Ile | Ser | His | Leu | Lys | Val | Leu | Gln | Cys | Gln | Gly |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Phe | Tyr | His | Leu | Cys | Gly | Val | His | Gln | Glu | Asp | Val | Ile | Tyr | Leu | Ala |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |

Leu Pro Leu Tyr His Met Ser Gly Ser Leu Leu Gly Ile Val Gly Cys  
 260 265 270  
 Leu Gly Ile Gly Ala Thr Val Val Leu Lys Pro Lys Phe Ser Ala Ser  
 275 280 285  
 Gln Phe Trp Asp Asp Cys Gln Lys His Arg Val Thr Val Phe Gln Tyr  
 290 295 300  
 Ile Gly Glu Leu Cys Arg Tyr Leu Val Asn Gln Pro Pro Ser Lys Ala  
 305 310 315 320  
 Glu Phe Asp His Lys Val Arg Leu Ala Val Gly Ser Gly Leu Arg Pro  
 325 330 335  
 Asp Thr Trp Glu Arg Phe Leu Arg Arg Phe Gly Pro Leu Gln Ile Leu  
 340 345 350  
 Glu Thr Tyr Gly Met Thr Glu Gly Asn Val Ala Thr Phe Asn Tyr Thr  
 355 360 365  
 Gly Arg Gln Gly Ala Val Gly Arg Ala Ser Trp Leu Tyr Lys His Ile  
 370 375 380  
 Phe Pro Phe Ser Leu Ile Arg Tyr Asp Val Met Thr Gly Glu Pro Ile  
 385 390 395 400  
 Arg Asn Ala Gln Gly His Cys Met Thr Thr Ser Pro Gly Glu Pro Gly  
 405 410 415  
 Leu Leu Val Ala Pro Val Ser Gln Gln Ser Pro Phe Leu Gly Tyr Ala  
 420 425 430  
 Gly Ala Pro Glu Leu Ala Lys Asp Lys Leu Leu Lys Asp Val Phe Trp  
 435 440 445  
 Ser Gly Asp Val Phe Phe Asn Thr Gly Asp Leu Leu Val Cys Asp Glu  
 450 455 460  
 Gln Gly Phe Leu His Phe His Asp Arg Thr Gly Asp Thr Ile Arg Trp  
 465 470 475 480  
 Lys Gly Glu Asn Val Ala Thr Thr Glu Val Ala Glu Val Leu Glu Thr  
 485 490 495  
 Leu Asp Phe Leu Gln Glu Val Asn Ile Tyr Gly Val Thr Val Pro Gly  
 500 505 510  
 His Glu Gly Arg Ala Gly Met Ala Ala Leu Ala Leu Arg Pro Pro Gln  
 515 520 525  
 Ala Leu Asn Leu Val Gln Leu Tyr Ser His Val Ser Glu Asn Leu Pro  
 530 535 540  
 Pro Tyr Ala Arg Pro Arg Phe Leu Arg Leu Gln Glu Ser Leu Ala Thr  
 545 550 555 560  
 Thr Glu Thr Phe Lys Gln Gln Lys Val Arg Met Ala Asn Glu Gly Phe  
 565 570 575  
 Asp Pro Ser Val Leu Ser Asp Pro Leu Tyr Val Leu Asp Gln Asp Ile  
 580 585 590  
 Gly Ala Tyr Leu Pro Leu Thr Pro Ala Arg Tyr Ser Ala Leu Leu Ser  
 595 600 605  
 Gly Asp Leu Arg Ile  
 610

<210> 95  
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 <212> PRT  
 <213> Mus musculus

<400> 95  
 His Ala Ser Ala His Ala Ser Gly Met Ala Lys Leu Gly Val Glu Ala  
 1 5 10 15  
 Ala Leu Ile Asn Thr Asn Leu Arg Arg Asp Ala Leu Arg His Cys Leu  
 20 25 30  
 Asp Thr Ser Lys Ala Arg Ala Leu Ile Phe Gly Ser Glu Met Ala Ser  
 35 40 45

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Cys | Glu | Ile | His | Ala | Ser | Leu | Glu | Pro | Thr | Leu | Ser | Leu | Phe |
| 50  |     |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Cys | Ser | Gly | Ser | Trp | Glu | Pro | Ser | Thr | Val | Pro | Val | Ser | Thr | Glu | His |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Leu | Asp | Pro | Leu | Leu | Glu | Asp | Ala | Pro | Lys | His | Leu | Pro | Ser | His | Pro |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Asp | Lys | Gly | Phe | Thr | Asp | Lys | Leu | Phe | Tyr | Ile | Tyr | Thr | Ser | Gly | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Thr | Gly | Leu | Pro | Lys | Ala | Ala | Ile | Val | Val | His | Ser | Arg | Tyr | Tyr | Arg |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Met | Ala | Ser | Leu | Val | Tyr | Tyr | Gly | Phe | Arg | Met | Arg | Pro | Asp | Asp | Ile |
| 130 |     |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Tyr | Asp | Cys | Leu | Pro | Leu | Tyr | His | Ser | Ser | Arg | Lys | His | Arg | Gly |
| 145 |     |     |     | 150 |     |     |     |     |     | 155 |     |     |     |     | 160 |
| Asp | Trp | Gln | Cys | Leu | Leu | His | Gly | Met | Thr | Val | Val | Ile | Arg | Lys | Lys |
|     |     |     | 165 |     |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Phe | Ser | Ala | Ser | Arg | Phe | Trp | Asp | Asp | Cys | Ile | Lys | Tyr | Asn | Cys | Thr |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Val | Val | Gln | Tyr | Ile | Gly | Glu | Leu | Cys | Arg | Tyr | Leu | Leu | Asn | Gln | Pro |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Pro | Arg | Glu | Ala | Glu | Ser | Arg | His | Lys | Val | Arg | Met | Ala | Leu | Gly | Asn |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Gly | Leu | Arg | Gln | Ser | Ile | Trp | Thr | Asp | Phe | Ser | Ser | Arg | Phe | His | Ile |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Pro | Gln | Val | Ala | Glu | Phe | Tyr | Gly | Ala | Thr | Glu | Cys | Asn | Cys | Ser | Leu |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gly | Asn | Phe | Asp | Ser | Arg | Val | Gly | Ala | Cys | Gly | Phe | Asn | Ser | Arg | Ile |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Leu | Ser | Phe | Val | Tyr | Pro | Ile | Arg | Leu | Val | Arg | Val | Asn | Glu | Asp | Thr |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Met | Glu | Leu | Ile | Arg | Gly | Pro | Asp | Gly | Val | Cys | Ile | Pro | Cys | Gln | Pro |
| 290 |     |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Gly | Gln | Pro | Gly | Gln | Leu | Val | Gly | Arg | Ile | Ile | Gln | Gln | Asp | Pro | Leu |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Arg | Arg | Phe | Asp | Gly | Tyr | Leu | Asn | Gln | Gly | Ala | Asn | Asn | Lys | Lys | Ile |
|     |     |     | 325 |     |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Ala | Asn | Asp | Val | Phe | Lys | Lys | Gly | Asp | Gln | Ala | Tyr | Leu | Thr | Gly | Asp |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Val | Leu | Val | Met | Asp | Glu | Leu | Gly | Tyr | Leu | Tyr | Phe | Arg | Asp | Arg | Thr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val |
| 370 |     |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Glu | Gly | Thr | Leu | Ser | Arg | Leu | Leu | His | Met | Ala | Asp | Val | Ala | Val | Tyr |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gly | Val | Glu | Val | Pro | Gly | Thr | Glu | Gly | Arg | Ala | Gly | Met | Ala | Ala | Val |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Ala | Ser | Pro | Ile | Ser | Asn | Cys | Asp | Leu | Glu | Ser | Phe | Ala | Gln | Thr | Leu |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Lys | Lys | Glu | Leu | Pro | Leu | Tyr | Ala | Arg | Pro | Ile | Phe | Leu | Arg | Phe | Leu |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Pro | Glu | Leu | His | Lys | Thr | Gly | Thr | Phe | Lys | Phe | Gln | Lys | Thr | Glu | Leu |
| 450 |     |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Arg | Lys | Glu | Gly | Phe | Asp | Pro | Ser | Val | Val | Lys | Asp | Pro | Leu | Phe | Tyr |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Leu | Asp | Ala | Arg | Lys | Gly | Cys | Tyr | Val | Ala | Leu | Asp | Gln | Glu | Ala | Tyr |
|     |     |     | 485 |     |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Thr | Arg | Ile | Gln | Ala | Gly | Glu | Glu | Lys | Leu |     |     |     |     |     |     |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     |     |     |     |

<210> 96  
 <211> 662  
 <212> PRT  
 <213> Mus musculus

<400> 96  
 Met Ala Leu Ala Leu Arg Trp Phe Leu Gly Asp Pro Thr Cys Leu Val  
 1 5 10 15  
 Leu Leu Gly Leu Ala Leu Leu Gly Arg Pro Trp Ile Ser Ser Trp Met  
 20 25 30  
 Pro His Trp Leu Ser Leu Val Gly Ala Ala Leu Thr Leu Phe Leu Leu  
 35 40 45  
 Pro Leu Gln Pro Pro Pro Gly Leu Arg Trp Leu His Lys Asp Val Ala  
 50 55 60  
 Phe Thr Phe Lys Met Leu Phe Tyr Gly Leu Lys Phe Arg Arg Arg Leu  
 65 70 75 80  
 Asn Lys His Pro Pro Glu Thr Phe Val Asp Ala Leu Glu Arg Gln Ala  
 85 90 95  
 Leu Ala Trp Pro Asp Arg Val Ala Leu Val Cys Thr Gly Ser Glu Gly  
 100 105 110  
 Ser Ser Ile Thr Asn Ser Gln Leu Asp Ala Arg Ser Cys Gln Ala Ala  
 115 120 125  
 Trp Val Leu Lys Ala Lys Leu Lys Asp Ala Val Ile Gln Asn Thr Arg  
 130 135 140  
 Asp Ala Ala Ala Ile Leu Val Leu Pro Ser Lys Thr Ile Ser Ala Leu  
 145 150 155 160  
 Ser Val Phe Leu Gly Leu Ala Lys Leu Gly Cys Pro Val Ala Trp Ile  
 165 170 175  
 Asn Pro His Ser Arg Gly Met Pro Leu Leu His Ser Val Arg Ser Ser  
 180 185 190  
 Gly Ala Ser Val Leu Ile Val Asp Pro Asp Leu Gln Glu Asn Leu Glu  
 195 200 205  
 Glu Val Leu Pro Lys Leu Leu Ala Glu Asn Ile His Cys Phe Tyr Leu  
 210 215 220  
 Gly His Ser Ser Pro Thr Pro Gly Val Glu Ala Leu Gly Ala Ser Leu  
 225 230 235 240  
 Asp Ala Ala Pro Ser Asp Pro Val Pro Ala Ser Leu Arg Ala Thr Ile  
 245 250 255  
 Lys Trp Lys Ser Pro Ala Ile Phe Ile Phe Thr Ser Gly Thr Thr Gly  
 260 265 270  
 Leu Pro Lys Pro Ala Ile Leu Ser His Glu Arg Val Ile Gln Val Ser  
 275 280 285  
 Asn Val Leu Ser Phe Cys Gly Cys Arg Ala Asp Asp Val Val Tyr Asp  
 290 295 300  
 Val Leu Pro Leu Tyr His Thr Ile Gly Leu Val Leu Gly Phe Leu Gly  
 305 310 315 320  
 Cys Leu Gln Val Gly Ala Thr Cys Val Leu Ala Pro Lys Phe Ser Ala  
 325 330 335  
 Ser Arg Phe Trp Ala Glu Cys Arg Gln His Gly Val Thr Val Ile Leu  
 340 345 350  
 Tyr Val Gly Glu Ile Leu Arg Tyr Leu Cys Asn Val Pro Glu Gln Pro  
 355 360 365  
 Glu Asp Lys Ile His Thr Val Arg Leu Ala Met Gly Thr Gly Leu Arg  
 370 375 380  
 Ala Asn Val Trp Lys Asn Phe Gln Gln Arg Phe Gly Pro Ile Arg Ile  
 385 390 395 400  
 Trp Glu Phe Tyr Gly Ser Thr Glu Gly Asn Val Gly Leu Met Asn Tyr  
 405 410 415

Val Gly His Cys Gly Ala Val Gly Arg Thr Ser Cys Ile Leu Arg Met  
 420 425 430  
 Leu Thr Pro Phe Glu Leu Val Gln Phe Asp Ile Glu Thr Ala Glu Pro  
 435 440 445  
 Leu Arg Asp Lys Gln Gly Phe Cys Ile Pro Val Glu Pro Gly Lys Pro  
 450 455 460  
 Gly Leu Leu Leu Thr Lys Val Arg Lys Asn Gln Pro Phe Leu Gly Tyr  
 465 470 475 480  
 Arg Gly Ser Gln Ala Glu Ser Asn Arg Lys Leu Val Ala Asn Val Arg  
 485 490 495  
 Arg Val Gly Asp Leu Tyr Phe Asn Thr Gly Asp Val Leu Thr Leu Asp  
 500 505 510  
 Gln Glu Gly Phe Phe Tyr Phe Gln Asp Arg Leu Gly Asp Thr Phe Arg  
 515 520 525  
 Trp Lys Gly Glu Asn Val Ser Thr Gly Glu Val Glu Cys Val Leu Ser  
 530 535 540  
 Ser Leu Asp Phe Leu Glu Val Asn Val Tyr Gly Val Pro Val Pro  
 545 550 555 560  
 Gly Cys Glu Gly Lys Val Gly Met Ala Ala Val Lys Leu Ala Pro Gly  
 565 570 575  
 Lys Thr Phe Asp Gly Gln Lys Leu Tyr Gln His Val Arg Ser Trp Leu  
 580 585 590  
 Pro Ala Tyr Ala Thr Pro His Phe Ile Arg Ile Gln Asp Ser Leu Glu  
 595 600 605  
 Ile Thr Asn Thr Tyr Lys Leu Val Lys Ser Arg Leu Val Arg Glu Gly  
 610 615 620  
 Phe Asp Val Gly Ile Ile Ala Asp Pro Leu Tyr Ile Leu Asp Asn Lys  
 625 630 635 640  
 Ala Gln Thr Phe Arg Ser Leu Met Pro Asp Val Tyr Gln Ala Val Cys  
 645 650 655  
 Glu Gly Thr Trp Asn Leu  
 660

&lt;210&gt; 97

&lt;211&gt; 650

&lt;212&gt; PRT

&lt;213&gt; Caenorhabditis elegans

&lt;400&gt; 97

Met Lys Leu Glu Glu Leu Val Thr Val Met Leu Leu Thr Val Ala Val  
 1 5 10 15  
 Ile Ala Gln Asn Leu Pro Ile Gly Val Ile Leu Ala Gly Val Leu Ile  
 20 25 30  
 Leu Tyr Ile Thr Val Val His Gly Asp Phe Ile Tyr Arg Ser Tyr Leu  
 35 40 45  
 Thr Leu Asn Arg Asp Leu Thr Gly Leu Ala Leu Ile Ile Glu Val Lys  
 50 55 60  
 Ile Asp Leu Trp Trp Arg Leu His Gln Asn Lys Gly Ile His Glu Leu  
 65 70 75 80  
 Phe Leu Asp Ile Val Lys Lys Asn Pro Asn Lys Pro Ala Met Ile Asp  
 85 90 95  
 Ile Glu Thr Asn Thr Thr Glu Thr Tyr Ala Glu Phe Asn Ala His Cys  
 100 105 110  
 Asn Arg Tyr Ala Asn Tyr Phe Gln Gly Leu Gly Tyr Arg Ser Gly Asp  
 115 120 125  
 Val Val Ala Leu Tyr Met Glu Asn Ser Val Glu Phe Val Ala Ala Trp  
 130 135 140  
 Met Gly Leu Ala Lys Ile Gly Val Val Thr Ala Trp Ile Asn Ser Asn  
 145 150 155 160



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Leu | Lys | Arg | Glu | Gln | Leu | Val | His | Cys | Ile | Thr | Ala | Ser | Lys | Thr | Lys |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |  |  |
| Ala | Ile | Ile | Thr | Ser | Val | Thr | Leu | Gln | Asn | Ile | Met | Leu | Asp | Ala | Ile |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     |     | 190 |     |  |  |
| Asp | Gln | Lys | Leu | Phe | Asp | Val | Glu | Gly | Ile | Glu | Val | Tyr | Ser | Val | Gly |  |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
| Glu | Pro | Lys | Lys | Asn | Ser | Gly | Phe | Lys | Asn | Leu | Lys | Lys | Lys | Leu | Asp |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
| Ala | Gln | Ile | Thr | Thr | Glu | Pro | Lys | Thr | Leu | Asp | Ile | Val | Asp | Phe | Lys |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
| Ser | Ile | Leu | Cys | Phe | Ile | Tyr | Thr | Ser | Gly | Thr | Thr | Gly | Met | Pro | Lys |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
| Ala | Ala | Val | Met | Lys | His | Phe | Arg | Tyr | Tyr | Ser | Ile | Ala | Val | Gly | Ala |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
| Ala | Lys | Ser | Phe | Gly | Ile | Arg | Pro | Ser | Asp | Arg | Met | Tyr | Val | Ser | Met |  |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
| Pro | Ile | Tyr | His | Thr | Ala | Ala | Gly | Ile | Leu | Gly | Val | Gly | Gln | Ala | Leu |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
| Leu | Gly | Gly | Ser | Ser | Cys | Val | Ile | Arg | Lys | Lys | Phe | Ser | Ala | Ser | Asn |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
| Phe | Trp | Arg | Asp | Cys | Val | Lys | Tyr | Asp | Cys | Thr | Val | Ser | Gln | Tyr | Ile |  |  |
|     |     |     | 325 |     |     |     |     | 330 |     |     |     |     |     | 335 |     |  |  |
| Gly | Glu | Ile | Cys | Arg | Tyr | Leu | Leu | Ala | Gln | Pro | Val | Val | Glu | Glu | Glu |  |  |
|     |     | 340 |     |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
| Ser | Arg | His | Arg | Met | Arg | Leu | Leu | Val | Gly | Asn | Gly | Leu | Arg | Ala | Glu |  |  |
|     | 355 |     |     |     |     | 360 |     |     |     |     |     | 365 |     |     |     |  |  |
| Ile | Trp | Gln | Pro | Phe | Val | Asp | Arg | Phe | Arg | Val | Arg | Ile | Gly | Glu | Leu |  |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |  |
| Tyr | Gly | Ser | Thr | Glu | Gly | Thr | Ser | Ser | Leu | Val | Asn | Ile | Asp | Gly | His |  |  |
| 385 |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     |     | 400 |  |  |
| Val | Gly | Ala | Cys | Gly | Phe | Leu | Pro | Ile | Ser | Pro | Leu | Thr | Lys | Lys | Met |  |  |
|     |     |     | 405 |     |     |     |     | 410 |     |     |     |     |     | 415 |     |  |  |
| His | Pro | Val | Arg | Leu | Ile | Lys | Val | Asp | Asp | Val | Thr | Gly | Glu | Ala | Ile |  |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |  |
| Arg | Thr | Ser | Asp | Gly | Leu | Cys | Ile | Ala | Cys | Asn | Pro | Gly | Glu | Ser | Gly |  |  |
|     | 435 |     |     |     |     | 440 |     |     |     |     |     | 445 |     |     |     |  |  |
| Ala | Met | Val | Ser | Thr | Ile | Arg | Lys | Asn | Asn | Pro | Leu | Leu | Gln | Phe | Glu |  |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |  |
| Gly | Tyr | Leu | Asn | Lys | Lys | Glu | Thr | Asn | Lys | Lys | Ile | Ile | Arg | Asp | Val |  |  |
| 465 |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     |     | 480 |  |  |
| Phe | Ala | Lys | Gly | Asp | Ser | Cys | Phe | Leu | Thr | Gly | Asp | Leu | Leu | His | Trp |  |  |
|     |     |     | 485 |     |     |     |     | 490 |     |     |     |     |     | 495 |     |  |  |
| Asp | Arg | Leu | Gly | Tyr | Val | Tyr | Phe | Lys | Asp | Arg | Thr | Gly | Asp | Thr | Phe |  |  |
|     |     | 500 |     |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |  |
| Arg | Trp | Lys | Gly | Glu | Asn | Val | Ser | Thr | Thr | Glu | Val | Glu | Ala | Ile | Leu |  |  |
|     | 515 |     |     |     |     | 520 |     |     |     |     |     | 525 |     |     |     |  |  |
| His | Pro | Ile | Thr | Gly | Leu | Ser | Asp | Ala | Thr | Val | Tyr | Gly | Val | Glu | Val |  |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |  |
| Pro | Gln | Arg | Glu | Gly | Arg | Val | Gly | Met | Ala | Ser | Val | Val | Arg | Val | Val |  |  |
| 545 |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     |     | 560 |  |  |
| Ser | His | Glu | Glu | Asp | Glu | Thr | Gln | Phe | Val | His | Arg | Val | Gly | Ala | Arg |  |  |
|     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |     |  |  |
| Leu | Ala | Ser | Ser | Leu | Thr | Ser | Tyr | Ala | Ile | Pro | Gln | Phe | Met | Arg | Ile |  |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |  |
| Cys | Gln | Asp | Val | Glu | Lys | Thr | Gly | Thr | Phe | Lys | Leu | Val | Lys | Thr | Asn |  |  |
|     | 595 |     |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |  |  |
| Leu | Gln | Arg | Leu | Gly | Ile | Met | Asp | Ala | Pro | Ser | Asp | Ser | Ile | Tyr | Ile |  |  |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |  |  |

Tyr Asn Ser Glu Asn Arg Asn Phe Val Pro Phe Asp Asn Asp Leu Arg  
 625 630 635 640  
 Cys Lys Val Ser Leu Gly Ser Tyr Pro Phe  
 645 650

<210> 98  
 <211> 623  
 <212> PRT  
 <213> *Saccharomyces cerevisiae*

<400> 98  
 Met Ser Pro Ile Gln Val Val Val Phe Ala Leu Ser Arg Ile Phe Leu  
 1 5 10 15  
 Leu Leu Phe Arg Leu Ile Lys Leu Ile Ile Thr Pro Ile Gln Lys Ser  
 20 25 30  
 Leu Gly Tyr Leu Phe Gly Asn Tyr Phe Asp Glu Leu Asp Arg Lys Tyr  
 35 40 45  
 Arg Tyr Lys Glu Asp Trp Tyr Ile Ile Pro Tyr Phe Leu Lys Ser Val  
 50 55 60  
 Phe Cys Tyr Ile Ile Asp Val Arg Arg His Arg Phe Gln Asn Trp Tyr  
 65 70 75 80  
 Leu Phe Ile Lys Gln Val Gln Gln Asn Gly Asp His Leu Ala Ile Ser  
 85 90 95  
 Tyr Thr Arg Pro Met Ala Glu Lys Gly Glu Phe Gln Leu Glu Thr Phe  
 100 105 110  
 Thr Tyr Ile Glu Thr Tyr Asn Ile Val Leu Arg Leu Ser His Ile Leu  
 115 120 125  
 His Phe Asp Tyr Asn Val Gln Ala Gly Asp Tyr Val Ala Ile Asp Cys  
 130 135 140  
 Thr Asn Lys Pro Leu Phe Val Phe Leu Trp Leu Ser Leu Trp Asn Ile  
 145 150 155 160  
 Gly Ala Ile Pro Ala Phe Leu Asn Tyr Asn Thr Lys Gly Thr Pro Leu  
 165 170 175  
 Val His Ser Leu Lys Ile Ser Asn Ile Thr Gln Val Phe Ile Asp Pro  
 180 185 190  
 Asp Ala Ser Asn Pro Ile Arg Glu Ser Glu Glu Glu Ile Lys Asn Ala  
 195 200 205  
 Leu Pro Asp Val Lys Leu Asn Tyr Leu Glu Glu Gln Asp Leu Met His  
 210 215 220  
 Glu Leu Leu Asn Ser Gln Ser Pro Glu Phe Leu Gln Gln Asp Asn Val  
 225 230 235 240  
 Arg Thr Pro Leu Gly Leu Thr Asp Phe Lys Pro Ser Met Leu Ile Tyr  
 245 250 255  
 Thr Ser Gly Thr Thr Gly Leu Pro Lys Ser Ala Ile Met Ser Trp Arg  
 260 265 270  
 Lys Ser Ser Val Gly Cys Gln Val Phe Gly His Val Leu His Met Thr  
 275 280 285  
 Asn Glu Ser Thr Val Phe Thr Ala Met Pro Leu Phe His Ser Thr Ala  
 290 295 300  
 Ala Leu Leu Gly Ala Cys Ala Ile Leu Ser His Gly Gly Cys Leu Ala  
 305 310 315 320  
 Leu Ser His Lys Phe Ser Ala Ser Thr Phe Trp Lys Gln Val Tyr Leu  
 325 330 335  
 Thr Gly Ala Thr His Ile Gln Tyr Val Gly Glu Val Cys Arg Tyr Leu  
 340 345 350  
 Leu His Thr Pro Ile Ser Lys Tyr Glu Lys Met His Lys Val Lys Val  
 355 360 365  
 Ala Tyr Gly Asn Gly Leu Arg Pro Asp Ile Trp Gln Asp Phe Arg Lys  
 370 375 380

Arg Phe Asn Ile Glu Val Ile Gly Glu Phe Tyr Ala Ala Thr Glu Ala  
 385 390 395 400  
 Pro Phe Ala Thr Thr Thr Phe Gln Lys Gly Asp Phe Gly Ile Gly Ala  
 405 410 415  
 Cys Arg Asn Tyr Gly Thr Ile Ile Gln Trp Phe Leu Ser Phe Gln Gln  
 420 425 430  
 Thr Leu Val Arg Met Asp Pro Asn Asp Asp Ser Val Ile Tyr Arg Asn  
 435 440 445  
 Ser Lys Gly Phe Cys Glu Val Ala Pro Val Gly Glu Pro Gly Glu Met  
 450 455 460  
 Leu Met Arg Ile Phe Phe Pro Lys Lys Pro Glu Thr Ser Phe Gln Gly  
 465 470 475 480  
 Tyr Leu Gly Asn Ala Lys Glu Thr Lys Ser Lys Val Val Arg Asp Val  
 485 490 495  
 Phe Arg Arg Gly Asp Ala Trp Tyr Arg Cys Gly Asp Leu Leu Lys Ala  
 500 505 510  
 Asp Glu Tyr Gly Leu Trp Tyr Phe Leu Asp Arg Met Gly Asp Thr Phe  
 515 520 525  
 Arg Trp Lys Ser Glu Asn Val Ser Thr Thr Glu Val Glu Asp Gln Leu  
 530 535 540  
 Thr Ala Ser Asn Lys Glu Gln Tyr Ala Gln Val Leu Val Val Gly Ile  
 545 550 555 560  
 Lys Val Pro Lys Tyr Glu Gly Arg Ala Gly Phe Ala Val Ile Lys Leu  
 565 570 575  
 Thr Asp Asn Ser Leu Asp Ile Thr Ala Lys Thr Lys Leu Leu Asn Asp  
 580 585 590  
 Ser Leu Ser Arg Leu Asn Leu Pro Ser Tyr Ala Met Pro Leu Phe Val  
 595 600 605  
 Lys Phe Val Asp Glu Ile Lys Met Thr Asp Asn Leu Ile Lys Phe  
 610 615 620

&lt;210&gt; 99

&lt;211&gt; 597

&lt;212&gt; PRT

&lt;213&gt; Mycobacterium tuberculosis

&lt;400&gt; 99

Met Ser Asp Tyr Tyr Gly Gly Ala His Thr Thr Val Arg Leu Ile Asp  
 1 5 10 15  
 Leu Ala Thr Arg Met Pro Arg Val Leu Ala Asp Thr Pro Val Ile Val  
 20 25 30  
 Arg Gly Ala Met Thr Gly Leu Leu Ala Arg Pro Asn Ser Lys Ala Ser  
 35 40 45  
 Ile Gly Thr Val Phe Gln Asp Arg Ala Ala Arg Tyr Gly Asp Arg Val  
 50 55 60  
 Phe Leu Lys Phe Gly Asp Gln Gln Leu Thr Tyr Arg Asp Ala Asn Ala  
 65 70 75 80  
 Thr Ala Asn Arg Tyr Ala Ala Val Leu Ala Arg Gly Val Gly Pro  
 85 90 95  
 Gly Asp Val Val Gly Ile Met Leu Arg Asn Ser Pro Ser Thr Val Leu  
 100 105 110  
 Ala Met Leu Ala Thr Val Lys Cys Gly Ala Ile Ala Gly Met Leu Asn  
 115 120 125  
 Tyr His Gln Arg Gly Glu Val Leu Ala His Ser Leu Gly Leu Leu Asp  
 130 135 140  
 Ala Lys Val Leu Ile Ala Glu Ser Asp Leu Val Ser Ala Val Ala Glu  
 145 150 155 160  
 Cys Gly Ala Ser Arg Gly Arg Val Ala Gly Asp Val Leu Thr Val Glu  
 165 170 175

Asp Val Glu Arg Phe Ala Thr Thr Ala Pro Ala Thr Asn Pro Ala Ser  
 180 185 190  
 Ala Ser Ala Val Gln Ala Lys Asp Thr Ala Phe Tyr Ile Phe Thr Ser  
 195 200 205  
 Gly Thr Thr Gly Phe Pro Lys Ala Ser Val Met Thr His His Arg Trp  
 210 215 220  
 Leu Arg Ala Leu Ala Val Phe Gly Gly Met Gly Leu Arg Leu Lys Gly  
 225 230 235 240  
 Ser Asp Thr Leu Tyr Ser Cys Leu Pro Leu Tyr His Asn Asn Ala Leu  
 245 250 255  
 Thr Val Ala Val Ser Ser Val Ile Asn Ser Gly Ala Thr Leu Ala Leu  
 260 265 270  
 Gly Lys Ser Phe Ser Ala Ser Arg Phe Trp Asp Glu Val Ile Ala Asn  
 275 280 285  
 Arg Ala Thr Ala Phe Val Tyr Ile Gly Glu Ile Cys Arg Tyr Leu Leu  
 290 295 300  
 Asn Gln Pro Ala Lys Pro Thr Asp Arg Ala His Gln Val Arg Val Ile  
 305 310 315 320  
 Cys Gly Asn Gly Leu Arg Pro Glu Ile Trp Asp Glu Phe Thr Thr Arg  
 325 330 335  
 Phe Gly Val Ala Arg Val Cys Glu Phe Tyr Ala Ala Ser Glu Gly Asn  
 340 345 350  
 Ser Ala Phe Ile Asn Ile Phe Asn Val Pro Arg Thr Ala Gly Val Ser  
 355 360 365  
 Pro Met Pro Leu Ala Phe Val Glu Tyr Asp Leu Asp Thr Gly Asp Pro  
 370 375 380  
 Leu Arg Asp Ala Ser Gly Arg Val Arg Arg Val Pro Asp Gly Glu Pro  
 385 390 395 400  
 Gly Leu Leu Leu Ser Arg Val Asn Arg Leu Gln Pro Phe Asp Gly Tyr  
 405 410 415  
 Thr Asp Pro Val Ala Ser Glu Lys Lys Leu Val Arg Asn Ala Phe Arg  
 420 425 430  
 Asp Gly Asp Cys Trp Phe Asn Thr Gly Asp Val Met Ser Pro Gln Gly  
 435 440 445  
 Met Gly His Ala Ala Phe Val Asp Arg Leu Gly Asp Thr Phe Arg Trp  
 450 455 460  
 Lys Gly Glu Asn Val Ala Thr Thr Gln Val Glu Ala Ala Leu Ala Ser  
 465 470 475 480  
 Asp Gln Thr Val Glu Glu Cys Thr Val Tyr Gly Val Gln Ile Pro Arg  
 485 490 495  
 Thr Gly Gly Arg Ala Gly Met Ala Ala Ile Thr Leu Arg Ala Gly Ala  
 500 505 510  
 Glu Phe Asp Gly Gln Ala Leu Ala Arg Thr Val Tyr Gly His Leu Pro  
 515 520 525  
 Gly Tyr Ala Leu Pro Leu Phe Val Arg Val Val Gly Ser Leu Ala His  
 530 535 540  
 Thr Thr Thr Phe Lys Ser Arg Lys Val Glu Leu Arg Asn Gln Ala Tyr  
 545 550 555 560  
 Gly Ala Asp Ile Glu Asp Pro Leu Tyr Val Leu Ala Gly Pro Asp Glu  
 565 570 575  
 Gly Tyr Val Pro Tyr Tyr Ala Glu Tyr Pro Glu Glu Val Ser Leu Gly  
 580 585 590  
 Arg Arg Pro Gln Gly  
 595

&lt;210&gt; 100

&lt;211&gt; 304

&lt;212&gt; PRT

&lt;213&gt; consensus FATP signature sequence

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 1 5 10 15  
 Val His Ser Arg Tyr Tyr Arg Gly Ala Ala Leu His Ser Gly Arg Met  
 20 25 30  
 Arg Pro Asp Val Val Tyr Asp Cys Leu Pro Leu Tyr His Ser Ala Ala  
 35 40 45  
 Leu Ile Leu Gly Ile Gly Gln Cys Leu Leu His Gly Ala Thr Val Val  
 50 55 60  
 Leu Arg Lys Lys Phe Ser Ala Ser Arg Phe Trp Asp Asp Cys Val Lys  
 65 70 75 80  
 Tyr Asn Val Thr Val Ile Gln Tyr Ile Gly Glu Leu Cys Arg Tyr Leu  
 85 90 95  
 Leu Asn Gln Pro Pro Arg Pro Ala Glu Arg Arg His Lys Val Arg Leu  
 100 105 110  
 Ala Val Gly Asn Gly Leu Arg Pro Asp Ile Trp Glu Glu Phe Val Ser  
 115 120 125  
 Arg Phe Gly Ile Pro Gln Ile Gly Glu Phe Tyr Gly Ala Thr Glu Gly  
 130 135 140  
 Asn Cys Ser Leu Met Asn Tyr Asp Gly Lys Val Gly Ala Cys Gly Ser  
 145 150 155 160  
 Arg Ile Leu Lys Lys Val Tyr Pro Ile Arg Leu Val Lys Val Asp Glu  
 165 170 175  
 Asp Thr Gly Glu Pro Ile Arg Asp Ala Gln Gly Leu Cys Ile Pro Cys  
 180 185 190  
 Gln Pro Gly Glu Pro Gly Leu Leu Val Gly Arg Ile Asn Gln Gln Asp  
 195 200 205  
 Pro Phe Arg Gly Phe Gly Tyr Gly Ser Glu Gly Ala Thr Asn Lys Lys  
 210 215 220  
 Ile Ala Arg Asp Val Phe Lys Lys Gly Asp Val Ala Phe Asn Thr Gly  
 225 230 235 240  
 Asp Val Leu Val Met Asp Glu Leu Gly Tyr Leu Tyr Phe Arg Asp Arg  
 245 250 255  
 Thr Gly Asp Thr Phe Arg Trp Lys Gly Glu Asn Val Ser Thr Thr Glu  
 260 265 270  
 Val Glu Gly Val Leu Ser Arg Leu Asp Phe Val Ala Glu Val Asn Val  
 275 280 285  
 Tyr Gly Val Thr Val Pro Gly His Glu Gly Arg Ala Gly Met Ala Ala  
 290 295 300

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 <211> 2166  
 <212> DNA  
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<220>  
 <221> CDS  
 <222> (19)...(2124)

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 Met Phe Ala Ser Gly Trp Asn Gln Thr Val Pro  
 1 5 10  
 ata gag gaa gcg ggc tcc atg gct gcc ctc ctg ctg ctg ccc ctg ctg 99  
 Ile Glu Glu Ala Gly Ser Met Ala Ala Leu Leu Leu Leu Pro Leu Leu  
 15 20 25  
 ctg ttg cta ccg ctg ctg ctg ctg ctg aag cta cac ctc tgg ccg cag 147  
 Leu Leu Leu Pro Leu Leu Leu Leu Leu Lys Leu His Leu Trp Pro Gln  
 30 35 40

|                                                                 |      |
|-----------------------------------------------------------------|------|
| ttg cgc tgg ctt ccg gcg gac ttg gcc ttt gcg gtg cga gct ctg tgc | 195  |
| Leu Arg Trp Leu Pro Ala Asp Leu Ala Phe Ala Val Arg Ala Leu Cys |      |
| 45 50 55                                                        |      |
| tgc aaa agg gct ctt cga gct cgc gcc ctg gcc gcg gct gcc gcc gac | 243  |
| Cys Lys Arg Ala Leu Arg Ala Arg Ala Leu Ala Ala Ala Ala Ala Asp |      |
| 60 65 70 75                                                     |      |
| ccg gaa ggt ccc gag ggg ggc tgc agc ctg gcc tgg cgc ctc gcg gaa | 291  |
| Pro Glu Gly Pro Glu Gly Gly Cys Ser Leu Ala Trp Arg Leu Ala Glu |      |
| 80 85 90                                                        |      |
| ctg gcc cag cag cgc gcc gcg cac acc ttt ctc att cac ggc tcg cgg | 339  |
| Leu Ala Gln Gln Arg Ala Ala His Thr Phe Leu Ile His Gly Ser Arg |      |
| 95 100 105                                                      |      |
| cgc ttt agc tac tca gag gcg gag cgc gag agt aac agg gct gca cgc | 387  |
| Arg Phe Ser Tyr Ser Glu Ala Glu Arg Glu Ser Asn Arg Ala Ala Arg |      |
| 110 115 120                                                     |      |
| gcc ttc cta cgt gcg cta ggc tgg gac tgg gga ccc gac ggc ggc gac | 435  |
| Ala Phe Leu Arg Ala Leu Trp Asp Trp Gly Pro Asp Gly Gly Asp     |      |
| 125 130 135                                                     |      |
| agc ggc gag ggg agc gct gga gaa ggc gag cgg gca gcg ccg gga gcc | 483  |
| Ser Gly Glu Gly Ser Ala Gly Glu Gly Glu Arg Ala Ala Pro Gly Ala |      |
| 140 145 150 155                                                 |      |
| gga gat gca gcg gcc gga agc ggc gcg gag ttt gcc gga ggg gac ggt | 531  |
| Gly Asp Ala Ala Ala Gly Ser Gly Ala Glu Phe Ala Gly Gly Asp Gly |      |
| 160 165 170                                                     |      |
| gcc gcc aga ggt gga gag ccc gcc cct ctg tca cct gga gca         | 579  |
| Ala Ala Arg Gly Gly Gly Glu Pro Ala Ala Pro Leu Ser Pro Gly Ala |      |
| 175 180 185                                                     |      |
| act gtg gcg ctg ctc ctc ccc gct ggc cca gag ttt ctg tgg ctc tgg | 627  |
| Thr Val Ala Leu Leu Leu Pro Ala Gly Pro Glu Phe Leu Trp Leu Trp |      |
| 190 195 200                                                     |      |
| ttc ggg ctg gcc aag gcc ggc ctg cgc act gcc ttt gtg ccc acc gcc | 675  |
| Phe Gly Leu Ala Lys Ala Gly Leu Arg Thr Ala Phe Val Pro Thr Ala |      |
| 205 210 215                                                     |      |
| ctg cgc cgg ggc ccc ctg ctg cac tgc ctc cgc agc tgc ggc gcg cgc | 723  |
| Leu Arg Arg Gly Pro Leu Leu His Cys Leu Arg Ser Cys Gly Ala Arg |      |
| 220 225 230 235                                                 |      |
| gcg ctg gtg ctg gcg cca gag ttt ctg gag tcc ctg gag ccg gac ctg | 771  |
| Ala Leu Val Leu Ala Pro Glu Phe Leu Glu Ser Leu Glu Pro Asp Leu |      |
| 240 245 250                                                     |      |
| ccc gcc ctg aga gcc atg ggg ctc cac ctg tgg gct gca ggc cca gga | 819  |
| Pro Ala Leu Arg Ala Met Gly Leu His Leu Trp Ala Ala Gly Pro Gly |      |
| 255 260 265                                                     |      |
| acc cac cct gct gga att agc gat ttg ctg gct gaa gtg tcc gct gaa | 867  |
| Thr His Pro Ala Gly Ile Ser Asp Leu Leu Ala Glu Val Ser Ala Glu |      |
| 270 275 280                                                     |      |
| gtg gat ggg cca gtg cca gga tac ctc tct tcc ccc cag agc ata aca | 915  |
| Val Asp Gly Pro Val Pro Gly Tyr Leu Ser Ser Pro Gln Ser Ile Thr |      |
| 285 290 295                                                     |      |
| gac acg tgc ctg tac atc ttc acc tct ggc acc acg ggc ctc ccc aag | 963  |
| Asp Thr Cys Leu Tyr Ile Phe Thr Ser Gly Thr Thr Gly Leu Pro Lys |      |
| 300 305 310 315                                                 |      |
| gct gct cgg atc agt cat ctg aag atc ctg caa tgc cag ggc ttc tat | 1011 |
| Ala Ala Arg Ile Ser His Leu Lys Ile Leu Gln Cys Gln Gly Phe Tyr |      |
| 320 325 330                                                     |      |
| cag ctg tgt ggt gtc cac cag gaa gat gtg atc tac ctc gcc ctc cca | 1059 |
| Gln Leu Cys Gly Val His Gln Glu Asp Val Ile Tyr Leu Ala Leu Pro |      |
| 335 340 345                                                     |      |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ctc | tac | cac | atg | tcc | ggg | tcc | ctg | ctg | ggc | atc | gtg | ggc | tgc | atg | ggc | 1107 |
| Leu | Tyr | His | Met | Ser | Gly | Ser | Leu | Leu | Gly | Ile | Val | Gly | Cys | Met | Gly |      |
|     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |     |     |     |      |
| att | ggg | gcc | aca | gtg | gtg | ctg | aaa | tcc | aag | ttc | tcg | gct | ggg | cag | ttc | 1155 |
| Ile | Gly | Ala | Thr | Val | Val | Leu | Lys | Ser | Lys | Phe | Ser | Ala | Gly | Gln | Phe |      |
|     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |     |     |     |     |      |
| tgg | gaa | gat | tgc | cag | cag | cac | agg | gtg | acg | gtg | ttc | cag | tac | att | ggg | 1203 |
| Trp | Glu | Asp | Cys | Gln | Gln | His | Arg | Val | Thr | Val | Phe | Gln | Tyr | Ile | Gly |      |
|     | 380 |     |     |     | 385 |     |     |     |     | 390 |     |     |     |     | 395 |      |
| gag | ctg | tgc | cga | tac | ctt | gtc | aac | cag | ccc | ccg | agc | aag | gca | gaa | cgt | 1251 |
| Glu | Leu | Cys | Arg | Tyr | Leu | Val | Asn | Gln | Pro | Pro | Ser | Lys | Ala | Glu | Arg |      |
|     |     |     | 400 |     |     |     |     |     | 405 |     |     |     |     | 410 |     |      |
| ggc | cat | aag | gtc | cgg | ctg | gca | gtg | ggc | agc | ggg | ctg | cgc | cca | gat | acc | 1299 |
| Gly | His | Lys | Val | Arg | Leu | Ala | Val | Gly | Ser | Gly | Leu | Arg | Pro | Asp | Thr |      |
|     |     | 415 |     |     |     |     |     | 420 |     |     |     |     | 425 |     |     |      |
| tgg | gag | cgt | ttt | gtg | cgg | cgc | ttc | ggg | ccc | ctg | cag | gtg | ctg | gag | aca | 1347 |
| Trp | Glu | Arg | Phe | Val | Arg | Arg | Phe | Gly | Pro | Leu | Gln | Val | Leu | Glu | Thr |      |
|     |     | 430 |     |     |     |     | 435 |     |     |     |     | 440 |     |     |     |      |
| tat | gga | ctg | aca | gag | ggc | aac | gtg | gcc | acc | atc | aac | tac | aca | gga | cag | 1395 |
| Tyr | Gly | Leu | Thr | Glu | Gly | Asn | Val | Ala | Thr | Ile | Asn | Tyr | Thr | Gly | Gln |      |
|     | 445 |     |     |     |     | 450 |     |     |     |     | 455 |     |     |     |     |      |
| cgg | ggc | gct | gtg | ggg | cgt | gct | tcc | tgg | ctt | tac | aag | cat | atc | ttc | ccc | 1443 |
| Arg | Gly | Ala | Val | Gly | Arg | Ala | Ser | Trp | Leu | Tyr | Lys | His | Ile | Phe | Pro |      |
|     | 460 |     |     |     | 465 |     |     |     |     | 470 |     |     |     |     | 475 |      |
| ttc | tcc | ttg | att | cgc | tat | gat | gtc | acc | aca | gga | gag | cca | att | cgg | gac | 1491 |
| Phe | Ser | Leu | Ile | Arg | Tyr | Asp | Val | Thr | Thr | Gly | Glu | Pro | Ile | Arg | Asp |      |
|     |     |     |     | 480 |     |     |     |     | 485 |     |     |     |     | 490 |     |      |
| ccc | cag | ggg | cac | tgt | atg | gcc | aca | tct | cca | ggg | gag | cca | ggg | ctg | ctg | 1539 |
| Pro | Gln | Gly | His | Cys | Met | Ala | Thr | Ser | Pro | Gly | Glu | Pro | Gly | Leu | Leu |      |
|     |     | 495 |     |     |     |     |     | 500 |     |     |     |     | 505 |     |     |      |
| gtg | gcc | ccg | gta | agc | cag | cag | tcc | cca | ttc | ctg | ggc | tat | gct | ggc | ggg | 1587 |
| Val | Ala | Pro | Val | Ser | Gln | Gln | Ser | Pro | Phe | Leu | Gly | Tyr | Ala | Gly | Gly |      |
|     |     | 510 |     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |      |
| cca | gag | ctg | gcc | cag | ggg | aag | ttg | cta | aag | gat | gtc | ttc | cgg | cct | ggg | 1635 |
| Pro | Glu | Leu | Ala | Gln | Gly | Lys | Leu | Leu | Lys | Asp | Val | Phe | Arg | Pro | Gly |      |
|     |     | 525 |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     |      |
| gat | gtt | ttc | ttc | aac | act | ggg | gac | ctg | ctg | gtc | tgc | gat | gac | caa | ggg | 1683 |
| Asp | Val | Phe | Phe | Asn | Thr | Gly | Asp | Leu | Leu | Val | Cys | Asp | Asp | Gln | Gly |      |
|     | 540 |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |      |
| ttt | ctc | cgc | ttc | cat | gat | cgt | act | gga | gac | acc | ttc | agg | tgg | aag | ggg | 1731 |
| Phe | Leu | Arg | Phe | His | Asp | Arg | Thr | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly |      |
|     |     |     |     | 560 |     |     |     | 565 |     |     |     |     |     | 570 |     |      |
| gag | aat | gtg | gcc | aca | acc | gag | gtg | gca | gag | gtc | ttc | gag | gcc | cta | gat | 1779 |
| Glu | Asn | Val | Ala | Thr | Thr | Glu | Val | Ala | Glu | Val | Phe | Glu | Ala | Leu | Asp |      |
|     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |     |     |      |
| ttt | ctt | cag | gag | gtg | aac | gtc | tat | gga | gtc | act | gtg | cca | ggg | cat | gaa | 1827 |
| Phe | Leu | Gln | Glu | Val | Asn | Val | Tyr | Gly | Val | Thr | Val | Pro | Gly | His | Glu |      |
|     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |     |     |     |      |
| ggc | agg | gct | gga | atg | gca | gcc | cta | gtt | ctg | cgt | ccc | ccc | cac | gct | ttg | 1875 |
| Gly | Arg | Ala | Gly | Met | Ala | Ala | Leu | Val | Leu | Arg | Pro | Pro | His | Ala | Leu |      |
|     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |     |     |     |     |      |
| gac | ctt | atg | cag | ctc | tac | acc | cac | gtg | tct | gag | aac | ttg | cca | cct | tat | 1923 |
| Asp | Leu | Met | Gln | Leu | Tyr | Thr | His | Val | Ser | Glu | Asn | Leu | Pro | Pro | Tyr |      |
|     | 620 |     |     |     | 625 |     |     |     |     | 630 |     |     |     |     | 635 |      |
| gcc | cgg | ccc | cga | ttc | ctc | agg | ctc | cag | gag | tct | ttg | gcc | acc | aca | gag | 1971 |
| Ala | Arg | Pro | Arg | Phe | Leu | Arg | Leu | Gln | Glu | Ser | Leu | Ala | Thr | Thr | Glu |      |
|     |     |     | 640 |     |     |     |     |     | 645 |     |     |     |     |     | 650 |      |

acc ttc aaa cag cag aaa gtt cgg atg gca aat gag ggc ttc gac ccc 2019  
 Thr Phe Lys Gln Lys Val Arg Met Ala Asn Glu Gly Phe Asp Pro  
                   655                  660                  665  
 agc acc ctg tct gac cca ctg tac gtt ctg gac cag gct gta ggt gcc 2067  
 Ser Thr Leu Ser Asp Pro Leu Tyr Val Leu Asp Gln Ala Val Gly Ala  
                   670                  675                  680  
 tac ctg ccc ctc aca act gcc cgg tac agc gcc ctc ctg gca gga aac 2115  
 Tyr Leu Pro Leu Thr Thr Ala Arg Tyr Ser Ala Leu Leu Ala Gly Asn  
                   685                  690                  695  
 ctt cga atc tgagaacttc cacacctgag gcacctgaga gaggaactct 2164  
 Leu Arg Ile  
 700

gt 2166

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 <211> 702  
 <212> PRT  
 <213> Homo sapiens

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   1                  5                  10                  15  
 Ser Met Ala Ala Leu Leu Leu Leu Pro Leu Leu Leu Leu Leu Pro Leu  
                   20                  25                  30  
 Leu Leu Leu Leu Lys Leu His Leu Trp Pro Gln Leu Arg Trp Leu Pro  
                   35                  40                  45  
 Ala Asp Leu Ala Phe Ala Val Arg Ala Leu Cys Cys Lys Arg Ala Leu  
                   50                  55                  60  
 Arg Ala Arg Ala Leu Ala Ala Ala Ala Ala Asp Pro Glu Gly Pro Glu  
   65                  70                  75                  80  
 Gly Gly Cys Ser Leu Ala Trp Arg Leu Ala Glu Leu Ala Gln Gln Arg  
                   85                  90                  95  
 Ala Ala His Thr Phe Leu Ile His Gly Ser Arg Arg Phe Ser Tyr Ser  
                   100                  105                  110  
 Glu Ala Glu Arg Glu Ser Asn Arg Ala Ala Arg Ala Phe Leu Arg Ala  
                   115                  120                  125  
 Leu Gly Trp Asp Trp Gly Pro Asp Gly Gly Asp Ser Gly Glu Gly Ser  
   130                  135                  140  
 Ala Gly Glu Gly Glu Arg Ala Ala Pro Gly Ala Gly Asp Ala Ala Ala  
   145                  150                  155                  160  
 Gly Ser Gly Ala Glu Phe Ala Gly Gly Asp Gly Ala Ala Arg Gly Gly  
                   165                  170                  175  
 Gly Glu Pro Ala Ala Pro Leu Ser Pro Gly Ala Thr Val Ala Leu Leu  
                   180                  185                  190  
 Leu Pro Ala Gly Pro Glu Phe Leu Trp Leu Trp Phe Gly Leu Ala Lys  
                   195                  200                  205  
 Ala Gly Leu Arg Thr Ala Phe Val Pro Thr Ala Leu Arg Arg Gly Pro  
   210                  215                  220  
 Leu Leu His Cys Leu Arg Ser Cys Gly Ala Arg Ala Leu Val Leu Ala  
   225                  230                  235                  240  
 Pro Glu Phe Leu Glu Ser Leu Glu Pro Asp Leu Pro Ala Leu Arg Ala  
                   245                  250                  255  
 Met Gly Leu His Leu Trp Ala Ala Gly Pro Gly Thr His Pro Ala Gly  
                   260                  265                  270  
 Ile Ser Asp Leu Leu Ala Glu Val Ser Ala Glu Val Asp Gly Pro Val  
                   275                  280                  285  
 Pro Gly Tyr Leu Ser Ser Pro Gln Ser Ile Thr Asp Thr Cys Leu Tyr  
   290                  295                  300



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Phe | Thr | Ser | Gly | Thr | Thr | Gly | Leu | Pro | Lys | Ala | Ala | Arg | Ile | Ser | 305 | 310 | 315 | 320 |
| His | Leu | Lys | Ile | Leu | Gln | Cys | Gln | Gly | Phe | Tyr | Gln | Leu | Cys | Gly | Val | 325 | 330 | 335 |     |
| His | Gln | Glu | Asp | Val | Ile | Tyr | Leu | Ala | Leu | Pro | Leu | Tyr | His | Met | Ser | 340 | 345 | 350 |     |
| Gly | Ser | Leu | Leu | Gly | Ile | Val | Gly | Cys | Met | Gly | Ile | Gly | Ala | Thr | Val | 355 | 360 | 365 |     |
| Val | Leu | Lys | Ser | Lys | Phe | Ser | Ala | Gly | Gln | Phe | Trp | Glu | Asp | Cys | Gln | 370 | 375 | 380 |     |
| Gln | His | Arg | Val | Thr | Val | Phe | Gln | Tyr | Ile | Gly | Glu | Leu | Cys | Arg | Tyr | 385 | 390 | 395 | 400 |
| Leu | Val | Asn | Gln | Pro | Pro | Ser | Lys | Ala | Glu | Arg | Gly | His | Lys | Val | Arg | 405 | 410 | 415 |     |
| Leu | Ala | Val | Gly | Ser | Gly | Leu | Arg | Pro | Asp | Thr | Trp | Glu | Arg | Phe | Val | 420 | 425 | 430 |     |
| Arg | Arg | Phe | Gly | Pro | Leu | Gln | Val | Leu | Glu | Thr | Tyr | Gly | Leu | Thr | Glu | 435 | 440 | 445 |     |
| Gly | Asn | Val | Ala | Thr | Ile | Asn | Tyr | Thr | Gly | Gln | Arg | Gly | Ala | Val | Gly | 450 | 455 | 460 |     |
| Arg | Ala | Ser | Trp | Leu | Tyr | Lys | His | Ile | Phe | Pro | Phe | Ser | Leu | Ile | Arg | 465 | 470 | 475 | 480 |
| Tyr | Asp | Val | Thr | Thr | Gly | Glu | Pro | Ile | Arg | Asp | Pro | Gln | Gly | His | Cys | 485 | 490 | 495 |     |
| Met | Ala | Thr | Ser | Pro | Gly | Glu | Pro | Gly | Leu | Leu | Val | Ala | Pro | Val | Ser | 500 | 505 | 510 |     |
| Gln | Gln | Ser | Pro | Phe | Leu | Gly | Tyr | Ala | Gly | Gly | Pro | Glu | Leu | Ala | Gln | 515 | 520 | 525 |     |
| Gly | Lys | Leu | Leu | Lys | Asp | Val | Phe | Arg | Pro | Gly | Asp | Val | Phe | Phe | Asn | 530 | 535 | 540 |     |
| Thr | Gly | Asp | Leu | Leu | Val | Cys | Asp | Asp | Gln | Gly | Phe | Leu | Arg | Phe | His | 545 | 550 | 555 | 560 |
| Asp | Arg | Thr | Gly | Asp | Thr | Phe | Arg | Trp | Lys | Gly | Glu | Asn | Val | Ala | Thr | 565 | 570 | 575 |     |
| Thr | Glu | Val | Ala | Glu | Val | Phe | Glu | Ala | Leu | Asp | Phe | Leu | Gln | Glu | Val | 580 | 585 | 590 |     |
| Asn | Val | Tyr | Gly | Val | Thr | Val | Pro | Gly | His | Glu | Gly | Arg | Ala | Gly | Met | 595 | 600 | 605 |     |
| Ala | Ala | Leu | Val | Leu | Arg | Pro | Pro | His | Ala | Leu | Asp | Leu | Met | Gln | Leu | 610 | 615 | 620 |     |
| Tyr | Thr | His | Val | Ser | Glu | Asn | Leu | Pro | Pro | Tyr | Ala | Arg | Pro | Arg | Phe | 625 | 630 | 635 | 640 |
| Leu | Arg | Leu | Gln | Glu | Ser | Leu | Ala | Thr | Thr | Glu | Thr | Phe | Lys | Gln | Gln | 645 | 650 | 655 |     |
| Lys | Val | Arg | Met | Ala | Asn | Glu | Gly | Phe | Asp | Pro | Ser | Thr | Leu | Ser | Asp | 660 | 665 | 670 |     |
| Pro | Leu | Tyr | Val | Leu | Asp | Gln | Ala | Val | Gly | Ala | Tyr | Leu | Pro | Leu | Thr | 675 | 680 | 685 |     |
| Thr | Ala | Arg | Tyr | Ser | Ala | Leu | Leu | Ala | Gly | Asn | Leu | Arg | Ile |     |     | 690 | 695 | 700 |     |

&lt;210&gt; 103

&lt;211&gt; 19

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Oligonucleotide

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ccccccaccag agaggctcc

19

<210> 104  
<211> 19  
<212> DNA  
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<220>  
<223> Oligonucleotide

<400> 104  
ccacccccgg aaagcctgc

19

<210> 105  
<211> 19  
<212> DNA  
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<220>  
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<400> 105  
ggagcctctc tggtggggg

19